FEBRUARY 1961

The Controller

EDITED FOR CONTROL AND FINANCE OFFICERS EXCLUSIVELY

PAYBACK AS AN AID IN CAPITAL BUDGETING

Herbert E. Dougall

DEPRECIATION AND THE NATION'S FUTURE

Frank V. Olds

THE PROBLEMS OF RESEARCH EVALUATION

Norman Oxley

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1. To establish, coordinate and administer, as an integral part of management, an adequate plan for the control of operations. Such a plan would provide, to the extent required in the business, profit planning, programs for capital investing and for financing, sales forecasts, expense budgets and cost standards, together with the necessary procedures to effectuate the plan.

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4. To administer tax policies and procedures.

5. To supervise or coordinate the preparation of reports to governmental agencies.

6. To assure fiscal protection for the assets of the business through adequate internal control and proper insurance coverage.

7. To continuously appraise economic and social forces, and government influences, and interpret their effect upon the business.

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The Controller

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THE CONTROLLER. Published monthly by Controllers Institute of America, Inc. Editorial office, Two Park Avenue, New York 16, N. Y. Publication office, 73 Main Street, Brattleboro, Vermont.

Second class postage paid at Brattleboro, Vt., September 1, 1937, under the act of March 3, 1879. Subscription $7.00 a year. 2 years $12.00. Single copy 65c. Orders from nonmembers of CIA outside Continental U. S. and Canada must be accompanied by remittance. Address subscriptions (and notices of change in mailing address) to the Circulation Manager care of the New York office. Advertising rate card available upon request to the Advertising Manager.

Change of address should be sent before the first of month preceding the issue to be changed.

The editor will be pleased to review manuscripts submitted for publication, but will not be responsible for loss in transit or otherwise. The views expressed in the various articles are those of the authors and not necessarily those of Controllers Institute of America. Printed in U. S. A.

POSTMASTER: Send Form 3579 to The Controller, 2 Park Ave., New York 16, New York.

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Correspondence

ADP—JAMES JOYCE STYLE

Editors, THE CONTROLLER:

We published an article on the application of computers to business—an article written in the style that is, as far as I know, new to technical writing.

On the whole, the reaction to the report of an anonymous manager's thoughts on ADP has been favorable and most people who have written to us about it have been quick to recognize the fact that, for the particular purpose of the report, "stream of consciousness" writing had special advantages. As you know, it is James Joyce whose name is most closely linked with this style of writing.

F. B. ROBERTS
Editor, *Engineering*
London, England

Excerpts from

THESE FLEETING THOUGHTS CONVINCE ME

This is a report of a man's thoughts on a topic of great promise—and of great complexity, too. His thoughts have not been arranged into orderly, logical sentences; they remain as random, as inconsequential, as thoughts are, or as near that condition as writing will allow. By thus keeping them fresh and spontaneous, the author communicates his experience.

An American consultant, with some of his colleagues, ran a course on automatic data processing in London. Automatic data processing (or ADP) is the modern nervous system of corporate bodies, whether they are companies, institutions, government departments, research establishments or other organisations in which the flow of information and data follows a complicated pattern. With ADP, information flows more smoothly and effectively; computers take over much of the mental work. In addition, the computers are able to produce information which was not previously available. Thus ADP touches the heart of an organisation, it probes the philosophy of the business, and it demands new thinking at the top. But it takes a long time—perhaps several years —for an organisation to examine ADP in relation to its needs because first the organisation itself must be studied.

Since an examination of ADP by one firm takes such a long time, and has to be tailored to suit the firm, any review of its methods and usefulness can give only the broadest indication of its application to an individual firm. Unless you are predisposed towards ADP you are not likely to recognise its possibilities just by reading a straightforward account of it.

Before the author of this report attended the first day of the course his conception of ADP was very hazy. At the end of it he felt, rather than argued logically, that ADP had tremendous possibilities. He was unable to prove that it could benefit his firm, still less yours or anyone else's, but he had acquired a strong conviction, as this record reveals.

The report excerpt starts on the evening of the opening day of the course when he mused on the day's happenings and considered his first serious impressions of ADP.

. . . 1,000 computers in the States and they've made lots of mistakes some firms pulled out of it it didn't pay—firm that spent two years studying computers put one in to work 20 hours every 24 then found it took over 30 hours had to start again and took another year and another machine—British firms can benefit—firms in Europe Israel India Australia will they understand American will they have enough technical bods to deal with this very very fundamental change—very very fundamental change—got to take new look not leave it all to committees—

top executive on golf course talks to friend about computers goes back to office calls his department heads why . . . . . haven't we got a computer we can afford one go away and order one—other executive who says we've formed an electronics committee we've formed an electronics committee we've formed an electronics committee we've formed an electronics committee—like a cracked record—it's a parrot cry they think that solves the problem if only they knew it's biggest fundamental change since division of labour no good starting with iron-mongery—computers—got to start with systems analysis get to whole basis of organisation spend a few years but don't mess about so long that you never get anywhere top man must ask the simple obvious questions to catch the wise guys who are working it out they get so wrapped up in the mathematics of it they may give daftest answers—

. . . we've got to train our chaps for heaven's sake beware of experts who have switched around so much on com-

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by Robert M. Tracy

puter work that they've never stayed long enough anywhere to do any good —no I must go back at end of week and put wet towel round my head to see best way to get everybody to come in on this—trade unions mustn't be afraid actually no cause for them to be afraid ADP not meant to save labour it gives something vastly more important more effective control of the business production integrates the whole business even controls a lot of branch factories but what about our firm where do I start—

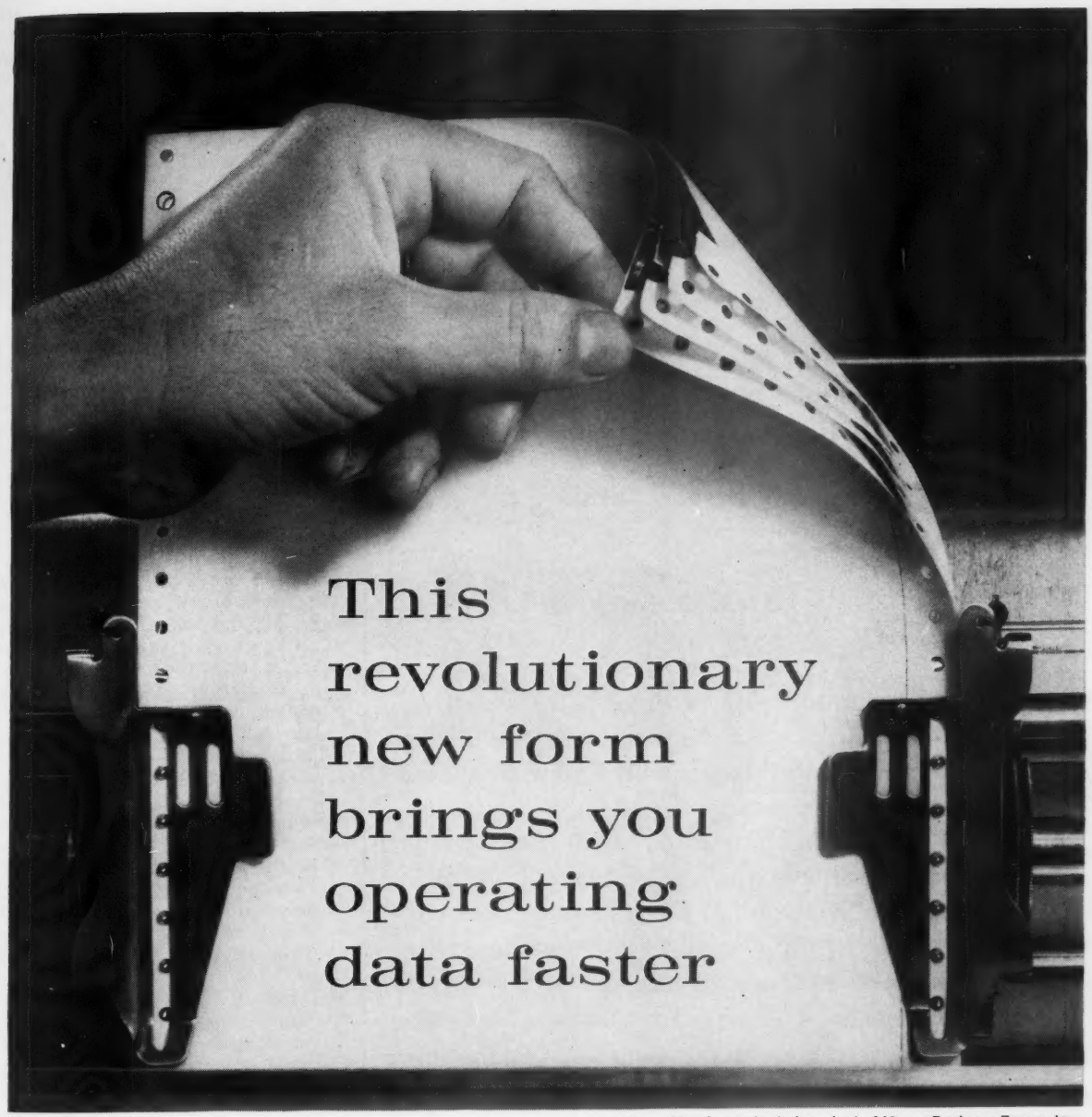
perhaps it will be clearer when I've listened to some of these lectures will they mind if I keep asking questions which are significant only to me what about the other fellows here mustn't stick my neck out too much . . . expect the fee would be steep will the board approve when they don't really understand it perhaps I should not tell them too much about the snags—still the so-and-soes will have to buckle down to it like me and understand enough of it or else nobody will be able to do anything to get started—

so we come back to committee to try and get understanding yes that's what American said but you have to get real work done by people who know what they're doing then they can keep in touch through committee but you mustn't think you're just mechanising office procedures—you'd waste a packet that way—you've got to dig right down into whole philosophy of organisation because its very very fundamental change—he kept saying that—yet here he is talking about it and he's only 31 what was I doing at his age could I have done this—I was just about coming out of the Army rather unpictured he was finishing his education but in 10 or 12 years all this has happened—in cycles of five years he said—we've got to get used to idea that change is happening at ever-increasing rate we've got to start now or we'll never catch up on the firms who start first if you once miss the boat you'll have a colossal job

now's the time when computers in U.K. are just starting to be used for commercial applications—up till now they've been on aircraft jobs mathematics research they started in America two or three years ago to go into commercial applications—that Englishman from steel firm said it's got to come—he was not going to lag behind should we start with a small computer or a medium one—fat-head you mustn't ask that sort of questions you must wait until you've done systems analysis ironmongery will come all in good time—still like idea of hiring one for a few hours just to try our scheme out by Jove that'll shake boys in other departments we'll have to get cooperation from start can we afford time people sitting on committees and studying for hours and weeks and months and years still it's a sort of gigantic capital investment not so much of machines but of best brains in firm from top men to some of back-room boys—what about other schemes we've got on the go can those go on just the same or should we suspend them until we get this started no I think first thing is have preliminary study quickly as possible to reach big decision is it worth going into automatic data processing at all we'll probably have to reach that decision on incomplete data still that may be best way to get round board—

. . . [someone] said commonest failure in America was firms consistently underestimated time money managerial ability required it's very very fundamental we mustn't get too tied to one system or one make of computer before we really know what we're doing—pseudo-scientific involvement in the sales talk he said—that's why I'm sure we've got to do all spade work ourselves—give it to operating executives he said—thank heaven we've been training deputies in the firm—that V.I.P. was right you've got to allow deputies to push you out of your job otherwise you won't be able to do all these things—even first preliminary analysis will reveal some improvements to be done without computers we must be careful of step-by-step approach otherwise we'll find ourselves in a few years' time saddled with expensive machines that are not suitable for new and better solution to the problems—

. . . said about two thirds of 1,000 firms in the States expressed disappointment at results of automatic data processing—lot of them bought computers without adequate consideration of what was involved don't think British firms will make same mistake but may take longer to make up their minds still that's better than going in for computers only to mechanise existing processes and procedures . . . some Americans have spent hundreds of thousands of dollars on machines and then put in charge people who have only had 8 to 10 weeks' experience at computer school —you wouldn't do that with any other equipment—costs thousands and thousands of pounds—hellish complicated business—blowed if I see if it could do us any good—so many factors don't know where to begin can you really rationalise a business sufficiently to be able to bring in ADP what about staff training getting right people don't seem to have many of right kind now perhaps they'll change when we get cracking—oh I've had enough for one day—haven't looked at the paper where the devil is it— *(Continued on page 64)*



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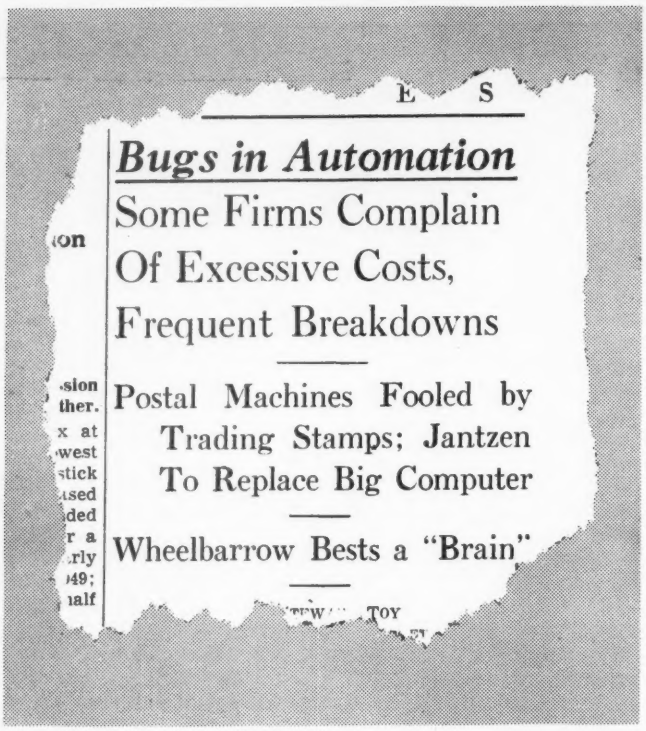

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The course lasted five days, from Monday to Friday, with lectures, formal and informal discussions, and a set of detailed manuals which the delegates could take away with them to help them in applying ADP to their own firms.

thank God we've come to the end of the week—must have a bath and a jolly good dinner—get into bed and try to clear thoughts—make some notes—see how it all fits in—put down the first ideas for the firm—can do that—it'll make sense to the others—wonder how things have gone on—

oh forget the bath—sit down now—get my notebook—light a cig—my what I could do for the old firm now—it's fantastic—management we've been playing at it—we've been doodling around—haven't even asked the right questions—just didn't know what was happening—only reason we've made a profit is that all the others have been just as much in the dark—it's true we are getting more and more godlike—getting less and less like the animals—more and more controlled by our intellects—how far will it go—we're still wild half the time—but the other half we're supermen—it's frightening—does anybody know where we're going—will we just go on getting more and more control over our minds and ourselves and our environment—or will there be a big bust-up—

oh come down to earth—where are those manuals—I'll try just flicking through my notes and the marks in the manuals—skim off the cream of my thoughts—put them in some shape—then let my mind rest—fallow—for the weekend—the good old subconscious will work on it when I'm not thinking—on Monday report back and then go into hiding if they'll let me—put everything I've got into the written report—

funny thing—I can't prove ADP is right thing for our firm but I know now—absolutely know it is—can the subconscious work it all out without telling the conscious—the mind itself is like a super computer—takes sort of several layers of thought at the same time and puts them all together—not just thought but past experience and knowledge and all you've learned in the past few days and the habits of thinking learned at school and developed all these years—maybe all this builds the mind up into this fantastic computing machine so that it gives you the answer without giving you the reasons and then with ADP you've got to spend two or three years actually working out the logical reasons that you can put over to the board—of course that's what we mean by the manager's hunch and the best managers are those whose minds are always working like that and they are always coming up with ideas that make things tick!

Payback As an Aid in Capital Budgeting

Herbert E. Dougall

A comprehensive study of this widely used and abused aid to capital expense decision-making

INTRODUCTION

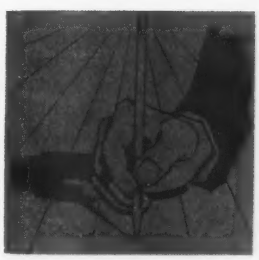
Recently business management has been paying increased attention to capital planning. It has recognized that errors in capital investment policy are reflected for possibly many years in the operating results and can prove disastrous. A mistake in inventory may be corrected early but a mistake in plant is compounded through the years by the heavy carrying costs of overhead, depreciation and interest. No one would quarrel with the proposition that an effort must be made *prior* to investment to anticipate the results of a commitment of corporate funds in a fixed form. However, there is a real controversy as to the form this effort should take.

The payback (payout, payoff) period seems to be the most commonly employed quantitative test that is applied to proposed capital expenditures. Yet, most of the discussion of capital budgeting in recent years deplores the use of payback in no uncertain terms. Some critics grudgingly admit the test may have some usefulness where a firm must protect its working capital position or is operating under unusually risky and uncertain conditions. But this is about as far as they go.

The clash between practice and criticism suggests that it is appropriate to take a really thorough look at this widely used but much-maligned device for testing and screening capital investment projects and to determine just what it can and cannot do as a tool of managerial decision-making in the realm of capital budgeting.

CONFUSION IN CALCULATION

At least part of the confusion surrounding the possible usefulness of the payback test stems from the lack of uniformity in its definition and calculation. Payback is at present calculated in a variety of ways: Using average investment, or initial or average savings or added income, before



and after income taxes, before and after depreciation, with and without interest included as a cost. There are additional differences of practice in the handling of the disposal value of replaced assets and the value of assets transferred to some other use; in the treatment of startup and other initial expense, and of depreciation; and in whether or not "working capital" is included in the investment base.

On careful analysis, one must conclude that there is only one valid method of computing payback. The others either introduce fallacious calculations or confuse payback with return on investment. The correct calculation can be made only if the concept is properly defined: *The estimated period (years, months) required for the incremental cash investment in a project to be recovered from year-to-year incremental operating cash flow or throw-off.*

The above definition indicates that payback is, no more and no less, *a time concept* with respect to *cash flow*. It simply tells management "we estimate we will get our money back in cash, in ___ years or ___ months." "Money" is the net investment in the project, whether defrayed all at once or over several years. "Cash" is the real cash flow or throw-off; it is the after-tax income with noncash write-offs added back, just as one adds these back in a "source and application of funds" statement.

Before going into the refinements of computing true payback, some of the ways in which it should *not* be figured should be analyzed.

1. Payback should *not* be calculated on the basis of "initial investment," "average investment" or "average savings" when the capital cost of a project is incurred in more than one year or when the cash savings are not uniform from year to year.

HERBERT E. DOUGALL, formerly professor of Finance at Northwestern University, holds the C. O. G. Miller professorship in Finance at the Graduate School of Business, Stanford University. A consultant in finance, he is past vice president, American Finance Association, and member of the Security Analysts of San Francisco. In 1959-60 he, under a Ford Foundation Faculty Research Fellowship, conducted an investigation of methods used by companies to measure the financial feasibility of proposed capital expenditures. This article incorporates some of his study's findings.

TABLE I
CALCULATION OF PAYBACK

Year	Case I		Case II		Case III		Case IV	
	One-Shot Investment	Uniform Cash Flow	One-Shot Investment	Varying Cash Flow	Uneven Investment	Varying Cash Flow	Uneven Investment	Declining Cash Flow
1	$10,000	$ 2,000	$10,000	$ 1,000	$ 5,000	—	$ 8,000	$ 4,000
2	—	2,000	—	1,000	4,000	$ 2,000	1,000	4,000
3	—	2,000	—	1,000	1,000	4,000	1,000	2,000
4	—	2,000	—	1,000	—	4,000	—	2,000
5	—	2,000	—	2,000	—	2,000	—	2,000
6	—	2,000	—	2,000	—	2,000	—	2,000
7	—	2,000	—	3,000	—	2,000	—	1,000
8	—	2,000	—	4,000	—	2,000	—	1,000
9	—	2,000	—	3,000	—	1,000	—	1,000
10	—	2,000	—	2,000	—	1,000	—	1,000
Totals	$10,000	$20,000	$10,000	$20,000	$10,000	$20,000	$10,000	$20,000
True payback	5 years		6-2/3 years		4 years		3 years	
Payback based on averages	5 years		5 years		5 years		5 years	

Table I shows the results of different combinations of (1) "one-shot" investment, (2) uniform cash flow, (3) uneven investment, and uneven cash flow. (Investment is assumed to be made at the beginning of the designated year.) The illustrations show that real payback and payback based on "average" figures can be altogether different.

2. Payback time should *not* be calculated on the basis of only the first year's expected savings. Even in the case of projects whose productivity is very uncertain, the first year's results may be far from typical. Operating "savings" or "added income" in the first year may be unusually low or high, and special expenditures may be written off in the first year and thus affect the cash flow through their influence on taxes.

3. Payback should not be calculated using pretax cash flow, for three reasons. First, projects that are depreciated under different systems for both book and tax purposes produce, because of the influence of depreciation on taxes and hence on net income, different annual cash flows and a different payback rate.

Thus in Case I in *Table I* where the post-tax payback is five years, assume the cash flow consists of $1,000 tax (and book) write-off and $1,000 net savings or added income. The predepreciation, pretax cash flow is therefore $3,000 (at a 50 per cent income tax rate) and the pretax payback is about three and three tenths years. But suppose this investment is being compared with another one that is subject to five-year amortization. The predepreciation, pretax payback of the alternative would also be three and three tenths years, but the post-tax payback would be four years (annual cash flow = depreciation of $2,000 plus net income of $500 for each of the first five years).

A second reason for avoiding the pretax cash flow in payback calculations arises from the fact that a firm may use a different depreciation rate for tax than for book purposes, applied to the *same* fixed assets (or indeed to all fixed assets). As a result, the real cash flow is disguised unless the influence of taxes is recognized. Again in Case I of *Table I*, assume that the write-off for *tax* purposes is $1,500. The tax bill becomes $750 (instead of $1,000), the cash flow $2,250, and the payback period about four and four tenths years.

But there is a third and more serious objection to the pretax payback calculation. It contains an inherent fallacy. Its advocates would say of Case I, "three and three tenths years is the payback period if we depreciate the property as fast as the funds it produces permit, that is, if all funds it produces are devoted to amortization." But note that if the pretax payback *is* three and three tenths years, an operating profit *is* assumed. It is illogical to assume earnings and then calculate payback *from the same figures* assuming that there will be no earnings!

Some companies studied by the writer justify pretax payback on the grounds that the calculation is made at the operating divisional level, whereas income taxes are a matter of over-all corporate concern. So the sponsor at the divisional level should not be concerned with the tax bite. This is all right as long as appropriate before-tax standards are suggested to the operating people, and a later review is made to assure that the same decisions would be made on an after-tax basis.

4. Payback should *not* be calculated using post-depreciation, post-tax net income as the denominator, divided into either original or average investment. Such figures are simply the reciprocals of simple rates of return and do not reveal the relation between real cash flow and investment. If a rate of return concept is to be used, it should be labelled and recognized as such and not confused with payback. Furthermore, to calculate the relation of investment and cash flow after depreciation involves a double counting of the first cost of the fixed asset, namely the recovery of plant from both depreciation and income after depreciation.

5. Payback should *not* be calculated using "savings" or increased profits *after* depreciation (more accurately, tax write-off) and before income taxes. One company interviewed by the author uses this

TABLE II
PAYBACK AND RATE OF RETURN (1)

Assume: 1. One-shot Investment = $10,000; no salvage value.
2. Straight-line depreciation for tax purposes.
3. Uniform annual cash flow.

Cash Flow Derivation	Fast Payback Zero Return (1-yr. life)	Fast Payback High Return (5-yr. life)	Slow Payback Low Return (6¼-yr. life)	Slow Payback Good Return (25-yr. life)
Net before tax depreciation	$10,000	$10,000	$2,000	$3,600
Less: tax depreciation	10,000	2,000	1,600	400
Net operating income	0	8,000	400	3,200
Taxes (50%)	0	4,000	200	1,600
Net income	0	4,000	200	1,600
Annual cash flow	$10,000	$ 6,000	$1,800	$2,000
Payback period	1 year	1.7 yrs.	5.5 yrs.	5 yrs.
Rate of return	0	53%	4%	20%

approach on the grounds that it is simple to compute and covers the major elements of cost. On inspection it is clear that such a calculation produces a pretax rate of return, and is not a measure of cash flow related to investment.

6. The payback calculation should *not* use a "savings" figure that has been adjusted for assumed interest. This is a departure from a strict and actual *cash flow* basis. It is neither a good criterion of cash flow nor an adequate rate of return test (because it is not time-adjusted). Furthermore, such a calculation again involves double counting. The net savings or added income (after depreciation and taxes) provides the return on the added investment; it is not net *after* interest.

7. The investment figure used in the payback calculations should *not* ordinarily include the additional net current assets or working capital associated with the new fixed assets. This is because the cash flow on which payback is based consists of *net* profit, with noncash expenses added back. In a normal operation, additional current assets such as inventory and receivables will be constantly replaced in the cycle of operations. In other words, the cash investment in added current assets is recovered *before* profit (and presumably reinvested as the current assets turn over). Payback cash flow is expected to *increase* working capital, not *replace* it. As long as the fixed assets are continued in use, auxiliary working capital is a sort of permanent investment.

CORRECT CALCULATION OF PAYBACK

Correctly considered, payback is the *time* required for an additional capital expenditure to be recovered through the year-by-year extra cash flow the expenditure is expected to produce.

The net additional investment in fixed assets is found by refining the additional *gross* investment as follows:

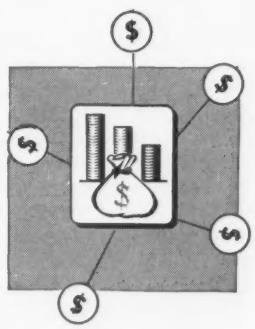
1. Reduce by the disposal value of assets that are replaced by the project. This is determined by estimated market value, trade-in value, or used machinery quotations (net after any capital gains tax resulting from an actual sale, and net after tax savings on any realized capital loss).

Some companies prefer to treat actual receipts from disposal as project income rather than a reduction of investment. (Payback time is not affected, however.) Others choose to ignore the reduction because they prefer to include the gross outlay in the capital budget, showing the disposal value of replaced assets as supporting data in the request for appropriation.

2. Reduce by the value of assets transferred to some other use, as determined by the best estimate of their market or reproduction value. (Note that the book value of the transferred asset is ignored.) Admittedly, this refinement is a departure from a strictly incremental *cash* approach, but within a company, in choosing among alternative projects, it has validity.

3. Include in the investment base the cost of additional storage and other associated fixed assets that will be required. These occur especially in the case of projects that represent additions rather than replacements. Some companies prefer to segregate such a cost in supplementary data, but it might as well be formally included in the base to the extent that it can be associated with a particular project.

4. Include design, tooling, start-up, installation, necessary alterations, and similar costs that can be associated with the project, and the development expense that can be allocated to the specific project. Some companies reduce the investment figure by the tax saving in the first year arising from the expensing (for tax purposes) of any portion of the start-up and similar costs during the period when such outlays are made. Other companies prefer to reflect this saving in the cash flow rather than in the investment figure.



This latter approach makes sense for, after all, the actual investment is the figure that must be financed, although the Government "returns" part of this in tax savings in the first year. The results are the same insofar as the payback figure is concerned.

Turning now to the other side of the payback calculation—the estimated cash flow. Here few complications are encountered and few variations are found. The cash flow figure is the anticipated incremental net income expected from cost savings or increased revenues, after income taxes, with noncash expenses added back. The figure is, of course, derived by estimating all the factors that determine the expected changes in operating revenues, cash operating expenses, noncash expenses, and applicable income taxes. The only influence of depreciation is on the tax bill, otherwise the figure is a predepreciation amount. For purposes of payback calculation, the risk of technical or product obsolescence, not reflected in tax life, is not important, as it is the cash flow during the payback period that counts.

Different degrees of uncertainty about the future savings or added income from projects usually—or should—require different standards. In some companies differences in uncertainty of estimates are allowed for by estimating earnings more conservatively. In others, such differences are considered subjectively, without formal inclusion in the calculations themselves.

In summary, then, payback is a *time* concept—the period required for recovery of the investment through cash flow. Viewed as such, it can be applied to situations in which the investment is not all made at once. It can also apply where the annual cash flow is not uniform when this is due to the expensing of part of the investment or to the tax treatment of depreciation or to variation in operating savings or increased profits before depreciation (within the payback period).

ANALYSIS OF DEFECTS AND LIMITATIONS

As indicated previously, the payback test as an aid to capital budgeting decisions has been severely criticized. Some of the criticism, and much of the confusion, in the discussion of payback stems from the lack of uniformity in its method of calculation. Let us examine the concept as *defined and explained above* to see how the criticisms stand up if the correct method of calculation is used.

1. *Payback does not measure profitability. Profitability depends on earnings after the original investment has been recovered.*

This classic criticism of payback is correct under certain conditions. *Table II* shows that fast payback may be accompanied by little or no return, and slow payback by a good return. In the first example, the cash flow consists entirely of funds representing depreciation, and there is no return. In the fourth example, the long life of the project produces a good, though not high, rate of return.

However, the second and third examples in *Table II* show conditions under which there is a correlation between payback and rate of return. In the second, the life of the project is three times the payback period, and the return is high. In the third, the life of the project is very little longer than the payback period, and the operating earnings are low. Payback time is based on the size of the early cash flow. Earning power depends on the duration as well as the amount of annual earnings. This means then that a rough idea of profitability can be gained by keeping one eye on payback and the other on the life of the project—rough, but good enough to make payback useful as a rough screening device and, for "small" projects, good enough to determine their desirability.

TABLE III

PAYBACK AND RATE OF RETURN (2)

Assume: 1. One-shot Investment = $10,000; no salvage value.
2. Same payback; uniform annual cash flow; different estimated lives.
3. Straight line depreciation (for tax purposes).

Annual data	Years of life of project						
	4	5	10	15	20	25	50
Net before tax depreciation	$2,500	$3,000	$4,000	$4,333	$4,500	$4,600	$4,800
Less: depreciation	2,500	2,000	1,000	667	500	400	200
Net before income taxes	—	1,000	3,000	3,667	4,000	4,200	4,600
Income taxes (50%)	—	500	1,500	1,833	2,000	2,100	2,300
Net Income	—	500	1,500	1,833	2,000	2,100	2,300
Cash Flow	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Payback	4 yrs.	4 yrs.	4 yrs.	4 yrs.	4 yrs.	4 yrs.	4 yrs.
Rate of return	0	8%	21%	24%	25%	25%	25%

Table III shows more clearly the influence of the economic life of a project in its earning power. In this table the annual cash flow, and so the payback period, are kept constant. But the rate of return ranges from zero to 25 per cent. (With the same annual cash flow, the net income must increase to offset the decline in the depreciation component as the life of the project increases.)

But it should also be noted that in *Tables II* and *III*, the *reciprocal* of the payback period approaches the rate of return as the life of the project extends further beyond the payback period. In *Table II*, second example, the life of five years is about three times the payback period, the reciprocal of the payback period is 59 per cent, and the rate of return is 53 per cent. In *Table III*, the 15-year project shows a reciprocal of 25 per cent, and a rate of return of 24 per cent; in the case of the 20-, 25-, and 50-year projects, the reciprocal of the payback period (25 per cent) equals the rate of return (25 per cent, to the nearest whole percentage).*

One can conclude, then, that under given conditions (uniform cash flow, project life considerably in excess of the payback period, and small salvage value) payback directly, or through its reciprocal, does provide a convenient measure of earning power and avoids the calculations that a time-adjusted rate of return requires.

Company practices differ in the application of this concept. Some companies use formalized tables for converting payback to rate of return. Others simply insist on a payback period that is substantially less than the life of the project so as to ensure a fairly high rate of return.

It is dangerous, however, to use payback as a *ranking* device in determining the *relative* merit of different proposals where *both* the service life and the income patterns of the projects are different. Where earnings vary widely from period to period during the life of the project, payback may penalize new investments where initial losses or low earnings are anticipated but where long-term earnings may be high.

2. *Payback ignores or disguises the shape of the stream of annual cash savings or increased cash income during the payback period.* Thus two projects, each involving an additional single investment of $10,000 with a five-year life, would show the same payback period (three years) for annual cash flow of (1) $2,000, $3,000, $5,000, $2,000, $3,000; (2) $5,000, $3,000, $2,000, $2,000, $3,000. This is, of course, another facet of the first objection discussed above, namely, that payback does not measure profitability. However, for short-lived projects, the shape of the early cash flow stream, unless it is extremely erratic, does not have much influence on rate of return. Thus for the two projects just described, the rates of return on a discounted cash flow basis are 15 per cent and 18 per cent respectively. Where the economic life is longer than the payback period, the shape of the (early) cash flow does influence both payback and rate of return. High initial operating earnings produce both a short payback and a high rate of return; low initial earnings produce a longer payback and a lower rate of return.

3. *Payback neglects the "economic" life of a project.* The real life of a project can turn out to be different from the life assumed for tax purposes. When the actual salvage or disposal value differs from the original estimated value, or when early disposal or write-off of the investment reduces its actual life below the estimated life, the cash flow in the last year must be revised. Certainly it is true that if these changes occur beyond the payback period, it will remain unaffected by them. However, the risk of lower-than-estimated salvage value or of early loss can be offset by imposing a shorter payback standard in the case of investments that are subject to unusual risk.

The use of payback does introduce a bias in form of short-lived investment opportunities and those that produce the bulk of cash throw-off in their early years. But this bias may be quite appropriate in companies that are subject to unusual risk of product or technical obsolescence. Such companies should, however, assume a short life and then proceed to calculate *both* payback and rate of return.

4. *Payback ignores large late earnings.* Again, like those just discussed, this objection suggests another weakness of payback as a measure of profitability. Large late earnings do not influence payback, but at the same time the present value of such earnings is, of course, much smaller than the present value of early earnings. Given a project life considerably in excess of the payback period, slow payback becomes a crude indication of depressed earning power, and fast payback accompanies high earning power.

5. *Payback ignores terminal salvage value.* In the strict sense, and in most situations, this is true, and it is another defect of using payback as a measure of profitability. However, salvage value at the end of the economic life of many projects is either small or uncertain and, if the payback period is short, the risk of uncertain salvage value and of substantial loss on abandonment of a project is diminished.

6. *Payback is not useful without a one-shot investment.* This is not a valid criticism if payback, as recommended herein, is defined as a *period of time* rather than as a percentage relationship. In the situations provided by *Table I*, where the investment is not made all at one time, it *is* valid to calculate the payback period, in years, for the entire investment or for the initial outlay.

* An extreme illustration may serve to explain why this is the case. If a project has an infinite life, the cash flow would consist entirely of interest return, without any capital recovery element as the term issued in the financial sense. Take a project with an original investment of $10,000, and an infinite annual cash flow of $2,000. The reciprocal of the payback period is 20 per cent. This is, of course, the rate of return produced by an infinite series of annual cash incomes of $2,000 and is the rate that would equate the present value of the cash flows and the original investment.

7. *Arbitrary payback requirements may result in poorly timed replacement.* This argument can be illustrated as follows:

Suppose a company has an arbitrary two-year payback requirement for a certain large category of investments. A replacement requiring an additional investment of $20,000 that would realize annual cost savings (after taxes) of $5,000 over a six-year period, and thus produces a post-tax rate of return of 13 per cent, would be refused because it fails to meet the payback standard. The company would retain the old machine for a number of years beyond its economic life; that is, until the savings resulting from replacement of a relatively deteriorating machine reach $10,000 a year (assuming the replacement always costs $20,000), thus passing up the available savings in the meantime.

Upon reflection, it is clear that this objection to fixed payback requirements applies not so much to payback *per se* but to the arbitrary nature of some payback standards. After developing experience with different types of projects, a company that uses payback and understands its implications should be able to set up varying requirements to apply to different situations. Blind use of any tests, however valid in their own right, is not intelligent. On the other hand, the apparently arbitrary rapid payback requirements imposed by some companies may be, in reality, the result of experience with technological change. This is especially likely to be the case insofar as equipment is concerned. Relatively short payback periods seem much more appropriate for proposed equipment than for major additions to plant.

In companies that do not calculate a rate of return by a time-adjusted method, a short payoff requirement may be valuable in that it offsets the built-in bias in favor of long-lived properties that is inherent in rates of return not adjusted for time.

8. *Payback cannot be used to see if earnings will cover cost of capital or some other minimum acceptable rate.* This objection again stems from the difficulty of using payback as a measure of earning power. However, to the extent that payback (or rather, its reciprocal) approximates the real rate of return, the calculation can be checked against whatever earnings standard—cost of capital or otherwise—the company chooses to use.

Summary of criticisms. The real criticisms of payback as a test of capital projects are all associated with its defects as a measure of profitability. They point out that the payback period ignores or fails to reflect adequately the economic life of the project, the shape and timing of its cash savings or added income, and its disposal value, and that it pays no attention to the time value of money. Some of the criticism is really directed not so much at the concept itself, but at its misuse.

It is not true that payback *never* gives a clue to profitability. Under rather limited conditions it can be used as a rough indicator of earning-power and as a device for comparing projects that have similar characteristics.

But although its value as a measure of profitability is limited, the estimated payback period, properly calculated, may still prove useful either as a single test, or in conjunction with others.

ANALYSIS OF MERITS AND USEFULNESS

We now turn to an analysis of the alleged merits and usefulness of the payback test. *Does it really do what some of its users claim?* Just as our analysis of criticism reveals that they have been overexaggerated, so may its proponents be claiming too much.

1. *Payback is relatively easy to compute and to understand.* This is certainly true with respect to the mathematics of the calculations. Considerations of length of useful life and terminal salvage value are avoided, as is controversy with respect to the "best" way of determining the rate of return. As a result, decision-making on the basis of payback looks relatively easy, and the test baffles no one at any management level. Perhaps this is a real *defect* of the test. Its very simplicity may lead to illogical use.

All this is not to say that the problems of estimating investment and cash flow are avoided. As with any other tests, the results are no more reliable than the data that are used. And the warning is always appropriate that formulae and figures are only aids to decision-making, and must always be used with discretion.

2. *Payback is useful as a measure of safety.* Of course, the shorter the actual payback time, the less the risk associated with the particular project. This may be a very important consideration in companies that must, for one reason or another, so emphasize liquidity that cash position becomes a dominating factor in investment decisions. Such an emphasis on payback could stem from a general working capital weakness or from the uncertainties connected with a particular type of investment. In the latter case, variations in payback requirements should be based on experience with the obsolescence of different types of property. Purely arbitrary standards are not intelligent.

Even in companies that are not under working capital pressure, there is need for an estimate of the cash flow derived from a proposed expenditure and its influence on the company's total cash situation, so that financial planning can be adequate. This is especially the case where the total funds budgeted for capital expenditures are limited.

3. *Payback may be the only feasible test under certain conditions.* In cases where the future results in terms of economic life and cash flow are so uncertain as to preclude any attempt at measuring earning power, payback is at least a protective device that may prevent some waste of capital. Indeed it may be impossible to apply any other test. But in such cases it should be used carefully to measure the attractiveness of the investment mainly from the standpoint of risk. From this standpoint, short payback requirements provide a sort of built-in insurance against risk.

In the case of companies that do not budget beyond one year, the payout period has special significance, and may indeed

"Just keep dusting the room, fussing with the bed and asking him if he wants anything, and he'll be back at the office tomorrow"

be a primary investing criterion. Concerns that make long-range forecasts of capital requirements appear to rely more on rate of return and less on payback than firms that take a short-run point of view and do not project capital requirements beyond one year.

4. *Payback is useful in comparing projects with similar characteristics.* This is, of course, true of comparisons with respect to speed of capital turnover. And we have seen that, given a long economic life, payback can be used as an indicator of comparative earning power provided the cash flow is relatively uniform from year to year, the depreciation basis is the same, and salvage value is relatively unimportant. These conditions will often prevail with respect to standardized equipment, so that payback can be used instead of a rate of return standard. But for many additions and expansion projects, there are too many variables to permit payback to be useful for anything except as an indicator of risk.

5. *Payback is useful as an initial screening device.* The validity of this argument depends on the purpose of the calculation. As a test of turnover of capital, the usefulness is obvious. But if profitability is important, payback taken alone can be grossly misleading. A short payback can be accomplished by no earnings. But in comparing projects with similar life spans, if the payback time is much shorter than the useful life, the test does reveal approximate relative profitability. Under such conditions screening by payback at the point of origin directs attention to more profitable projects that will be given a more thorough analysis.

In the initial screening, even if both payback and rate of return are calculated it does not, of course, follow that the latter will be a deciding factor. Suppose two projects, both desirable for corporate purposes, are being considered—one that pays out in two years but earns zero per cent, (two-year life) and another that pays out in four years but promises an eight per cent return (five-year life). In addition to preference for the former project from the standpoint of liquidity, it may also be chosen on the grounds that there may be opportunities to reinvest the proceeds at the end of the two years at a higher rate than eight per cent, and for longer than the remaining three years. This argues for a long-range capital forecast that sets forth future capital requirements and their possible profitability.

A word of caution on use of payback (or any other test) as a rough screening device is in order. Once a project gets past the first screening and into the tentative budget, the chances are that it will be finally adopted. This argues for care in project evaluation from the very beginning.

6. *Payback is an objective test.* Two somewhat different ideas seem to be involved here. To some, objectivity means that the shorter the forecast period, the easier it is to be accurate. A rapid payback materially reduces the risks of changing conditions and faulty predictions. Furthermore, the earnings in the early years are the most valuable. To others, "objectivity" suggests that an estimate of payback, based on its twin factors of investment and cash flow, is better than intuition or persuasion in determining the merits of a proposal. This is a good point—but it could be made for any type of test that involves analysis.

7. *Payback can help to determine the form and terms of financing.* Where amortized loans are used, the terms are geared to cash generation, not only from individual projects, but by the business as a whole. When a firm is planning expansion, the main test of intermediate credit (and in some cases long-term notes or bonds) is the projected ability of the borrower to amortize the loan from cash flow while covering its interest amply. Lenders that are asked to finance specific projects may require a payback projection.

Some bank credit agreements restrict investment in additional fixed assets to an amount that can be supported by cash flow. Under these conditions payback becomes a most important projection.

8. *Post-completion auditing of performance is easier.* A thorough-going system of capital expenditures planning and control involves an important last step—the check of actual results against the original estimates. A thorough post-audit requirement leads to tighter original estimates by improving forecasts and assumptions and fostering more caution in submission of competing proposals, and may provide a basis for taking corrective measures to improve the performance of the less successful projects.

A post-completion audit of payback results is easier than that of rate of return, especially where the latter was calculated from detailed data on a time-adjusted basis. If a company has justified an expenditure on the basis of a relatively short payback time, it is able to identify the results of the particular project and test the real payback long before (in some cases) the economic life of the new assets has expired. By contrast, one difficulty with the time-adjusted rate of return test is that the real results of an investment are not known until well along towards the end of its economic life. By then, except in simple equipment situations, it may be both impossible either to segregate the data pertaining to particular projects or to take effective corrective action if the results are disappointing.

Summary of advantages. Used alone as a test of capital turnover, or in conjunction with rate of return analysis, payback is a very useful tool in the capital budgeting process. Under conditions of unusual uncertainty it may be the only test of feasibility that can be applied. Under other conditions it may be used as a measure of profitability that ranges from rough to accurate.

CONCLUSIONS

Both the claimed defects and the claimed merits of the payback test have been exaggerated. Of the firms interviewed by the author, most that use the test were fully aware of its limitations, but at the same time had enough experience to understand its value. As would be expected, the chief opposition comes from those who are ardent advocates of time-adjusted approaches to capital expenditure decisions, applied to all projects. But, rightly or wrongly, many firms are not willing to adopt the more refined techniques. In some, where funds are limited, and where high rates of return are required and are ordinarily obtained, approximate methods of determining economic feasibility may be quite satisfactory.

Certainly the first step on the part of companies that are concerned with developing an adequate system of capital budgeting is to be thoroughly conversant with the merits and limitations of various possible tests or devices, as properly calculated. There are very real obstacles to such understanding—the natural lethargy that stems from content with customary procedures, the difficulty of the task of educating those involved, and the distrust of "mechanical formulae" as a "substitute for judgment." But if these obstacles are overcome, a gradual progression from more elementary to more complex testing of capital projects can be achieved. In any case, where properly calculated and where its usefulness and its limitations are well understood, the payback test can be a valuable tool in the capital budgeting process, either as a first step towards more refined techniques, or as a component in a comprehensive system.

HOT FILE

An office trainee by mistake slid letters to be filed down a chute leading to the furnace. This went on for eight months. The shattering part about the experience wasn't the loss of 3000 leters, but the realization that none had been missed.

DEPRECIATION AND THE NATION'S FUTURE

· Frank V. Olds

AS THE 87TH CONGRESS convenes, reform of the depreciation provisions of the Internal Revenue Code looms as one of the more important national issues now before the country. President Kennedy declared in his campaign that "it is sound, liberal policy to see that our productive plant is the best and most modern in the world." He went on to recommend specifically that "wherever we can be certain that tax revision, including accelerated depreciation, will encourage the modernization of our capital plant—and not be a disguise for tax avoidance—we should proceed with such revision."

The new administration is on record, then, as recognizing that a serious problem exists. It is to be hoped that it also realizes the necessity for acting promptly, in time to strengthen the economy for the international competitive struggle of the 1960's.

Current Methods Inadequate. Any method of depreciation that fails to provide funds sufficient to replace the assets of a going business—and this includes every method now given any recognition under our current tax laws—is not an adequate method for allocation of cost. Moreover, it is not an adequate method for maintaining, much less adding to, the national capital plant.

The Government should move promptly towards allowing business sufficient deductions before taxes to replace its overage or noncompetitive equipment at today's cost—not at what equipment cost 15 or 20 years ago under completely different conditions. It should act not only to shorten the depreciation period, but to allow for depreciating property on some basis other than historic cost.

It should start taking into account, in short, technological progress and inflation, in determining the depreciation allowances that are necessary to see that, in the words of President Kennedy, "there is proper encouragement to plant modernization."

Recommendations of a CIA Committee. Last year the Committee on Federal Taxation took its stand on the issue. In a letter to members of the House Ways and Means Committee, the Committee advised Congress that "the importance of the depreciation problem cannot be overstated. The national interest demands that early consideration be given to a more realistic approach to this problem, and we strongly urge that procedures along the lines here suggested would best serve that interest." The Committee recommended statutory changes to allow for (1) the presumption of correctness of service lives which are no shorter for tax purposes than on books of account; (2) the right to shift depreciation methods at the taxpayer's discretion; (3) the amendment of section 1231 to exclude salvage value and treat as ordinary income disposition proceeds within original cost; and (4) the setting up of provisions for cost level depreciation.

"We believe," the Committee stated, "that the most practical of the methods so far suggested to effect the latter recommendation is a procedure whereby depreciation computed on the basis of historical cost would be adjusted in relation to a generally accepted index of the current cost of taxpayer's depreciable property as compared with its historical cost. As an element of control where this approach is selected, the actual allowance should be limited to the amount taken by the taxpayer in his books of account."

The foregoing recommendations of the Committee on Federal Taxation were submitted to Congress in a climate of increasing public interest in the depreciation issue.

Hearings in the House and Senate. In late 1959, Chairman Wilbur D. Mills and the tax-writing House Ways and Means Committee had conducted almost six weeks of hearings on "Broadening the Tax Base." On the day devoted to provision for depreciation, witness after witness urged liberalization with a forcefulness that generated a nationwide movement of support.

In response to the ground swell, President Eisenhower recommended, in his 1960 budget message to Congress, the revision of section 1231 to provide that financial gain from the sale of depreciable personal property used in a trade or business should be treated as ordinary income instead of as a capital gain. But his proposals went no further, and at hearings on them the great majority of witnesses and those who filed statements favored revision of section 1231 only as part of a more far-reaching liberalization program.

Support for depreciation reform was not limited to witnesses at the House Committee hearings. In January 1960, the Senate Small Business Committee published its findings that "present depreciation policies do not sufficiently encourage the expansion of the national economy and in all probability have stifled economic growth." The Senate Committee held that the plight of small business is especially acute and recommended sweeping liberalization reform.

Accumulation of Evidence. Thus, through the House hearings and the Senate report to the importance made of the issue in the recent presidential campaign, the past year has seen a mass of evidence accumulate in favor of liberalizing present depreciation laws.

What has happened? Washington only mirrors a new awakening to the problem throughout the country. Besides the action which the CIA Committee took, strong positions favoring depreciation reform have been adopted by speakers and committees of the American Newspaper Publishers Association, the American Bar Association, the American Iron and Steel Institute, the National Shoe Manufacturers Association, the American Cotton Manufacturers Institute, the National

• *Mr. Olds, assistant comptroller of Chrysler Corporation, Detroit, Michigan, is the 1960-61 chairman of the Committee on Federal Taxation of Controllers Institute. He is past president of the Detroit Chapter of Tax Executives Institute and formerly a national director of the Tax Executives Institute. He is currently vice president of the Detroit Control of CIA.*

TREASURY DEPRECIATION SURVEY SUPPORTS VIEWS OF COMMITTEE ON FEDERAL TAXATION

A preliminary report on a depreciation survey released by the Treasury Department on January 5, 1961 reveals marked consistency with the recommendations on depreciation submitted by the Committee on Federal Taxation of Controllers Institute of America. The report, which is the result of a survey made by the Treasury with the cooperation of the Small Business Administration in July 1960, is based on approximately 3,100 responses—1918 from large businesses and 1177 from smaller businesses—representing about 71 per cent of the larger businesses and 16 per cent of the smaller businesses invited to submit data. Salient points covered in the preliminary report include:

Opinions of Major Causes of Inadequacy of Depreciation Allowances. 60 per cent attributed inadequacy to excessively long lives for tax purposes; 70 per cent considered price level changes a major cause of inadequacy.

Preferred Liberalization Methods. 51 per cent of the larger businesses expressing a preference chose freedom to follow the taxpayer's own judgment; 29 preferred an adjustment to reflect increased price levels; 8 per cent favored grouping depreciable assets into broad class categories with generally shortened lives prescribed by statute.

Adjustment to Reflect Increased Price Levels. 75 per cent of the larger and 59 per cent of the smaller businesses suggested allowing taxpayers to claim annual depreciation based on original cost adjusted for changes in price levels; 20 per cent of the larger and 39 per cent of the smaller businesses preferred the reinvestment depreciation allowance which would permit differences between original cost and replacement value of retired assets to be deducted at the time of replacement with corresponding reduction of depreciable basis of new property.

Response to Liberalized Depreciation. 86 per cent of the larger and 97 per cent of the smaller companies indicated a willingness to conform book and tax accounting if liberalization is along favored lines; 73 per cent of the larger and 63 per cent of the smaller respondents expressed a willingness to forego capital gains benefits on disposals to extent of depreciation previously taken, if depreciation is liberalized; 65 per cent of the larger and 59 per cent of the smaller businesses indicated that liberalized depreciation would increase their capital expenditures.

Future Trends of Obsolescence. 58 per cent of the larger and 34 per cent of the smaller firms anticipated an increase in the tempo of obsolescence.

This preliminary report of results dealing with taxpayers' experience and opinions in the depreciation area is not intended to present Treasury recommendations at this time with respect to future depreciation policy. Preliminary information merely indicates discernible trends in the thinking and experience of the business community and suggests many factors which should be taken into consideration in the formulation of major tax reform in the depreciation area. A final report which will present additional information is scheduled when more detailed tabulations are completed.

Small Business Men's Association, the Society of Business Advisory Professions, as well as the Chamber of Commerce of the United States and the National Association of Manufacturers.

The general press, television and radio commentators, as well as editors of technical and business journals have been speaking out on the significance of the issue. Economists have voiced their concurrence. When, last summer, the Treasury mailed out its questionnaire on the subject, nearly every trade association and industry leader urged business to send in a categorial reply.

With so much evidence of grassroots concern, there is now grounds for hope that the 87th Congress will bring about depreciation reforms at last. There is no lack of indications that it had better.

The Larger Framework. There is, of course, no question about the imperative need for any particular firm to keep abreast of technological growth. The individual company must keep pace or go out of business. But, in the larger framework, the nation's progress is similarly keyed to technological developments.

Fundamentally, it is investment in new and more efficient equipment that creates new and better products as well as increased productivity. By increasing productivity we create the only sound and noninflationary basis for raising wages and salaries. And this sound economic basis makes possible an adequate investment by the country as a whole in the tools of civilization.

On the other hand, without capital adequate even for replacement of facilities, there can be no timely stemming of the march of America's superior industrial machine to the junk pile.

Foreign Depreciation Policies. The problem of the shortage of capital funds must be recognized and it must be recognized not as a limited application to one corporation or one industry, but as a factor which materially restricts the formation of capital and which adversely affects the public interest. To affirm this conclusion, it is necessary only to comment on the depreciation policies adopted by countries with which we compete in the world market.

In surveying foreign depreciation policies, however brief and superficial it may be, two points seem to stand out: (1) These countries recognize the important part adequate depreciation allowances play in the building and maintenance of a dynamic industrial economy; (2) More importantly, they have without exception been more progressive than we in the United States in adopting needed depreciation reforms.

It is time to act affirmatively on the problem to assure that America's industrial machine remains competitive in all its markets.

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The Problem of Research Evaluation

The obstacles to be overcome in budgeting, and accounting for, the research dollar

Norman Oxley

THE IMPORTANCE of evaluating research is brought sharply into focus when one notes how rapidly outlays for research and development have increased in the United States during the last few years. According to a study published by the National Science Foundation before the end of 1960, such expenditures were expected to amount to $12.4 billion during the 1959-60 period. This would be an advance of about 140 per cent from the $5.2 billion spent in 1953-54, the first year for which a systematic compilation of data was undertaken.

Of the total $12.4 billion which was expected to be spent during 1959-60, the industry sector of the economy probably accounted for 76 per cent, the Federal Government for 14 per cent, colleges and universities for eight per cent, and other nonprofit institutions for two per cent. Outlays by all four sectors have increased substantially since 1953-54, but the largest rise, both absolute and relative, has occurred in industry. Spending by business concerns in 1959-60 was estimated at $9.4 billion, up 160 per cent from the 1953-54 total of $3.6 billion.

Outlays for research and development by the industry sector of the economy amounted to $9 billion in the calendar year 1959, according to McGraw-Hill. This expenditure represented an increase of almost 145 per cent from the $3.7 billion figure for 1953. It is estimated that of industry's total outlays in 1959, three per cent went for basic research, 19 per cent for applied research, and 78 per cent for product development.

The figures just cited attest to the growing size of the research bite into each year's industry budget. They should establish the need for paying closer attention to where the money goes and what it buys. Although there is at present little agreement on the subject—i.e., how to evaluate research—let us approach it, and at least try to limit the areas of disagreement, by discussing it under these general headings: The need for a definition of research; the experience of many companies in trying to arrive at such a definition; the relationship of research planning to other corporate long-range planning; the problem of selling research personnel on a system of evaluation; and the steps one company (the writer's) has worked out for its own research program.

First, and very importantly in evaluating research, there is a great need to define what it consists of. All sorts of things are collected under this caption in the accounts of our corporations. While it would be better to include only real research effort, there is no insuperable problem if it is clear just what other operations are covered even where some imagination is required to relate them to research work.

The inclusion of what is vaguely termed "trouble-shooting" does, however, create a serious problem in trying to anatomize the bill for research. In the first place, it is difficult to cost trouble-shooting activities for the particular reason that they are irregular. In the second place, there is the physical disadvantage of having a trouble-shooting staff within the research organization because of the general inclination to look in that direction for whatever needs to be done on an emergency basis.

(This seems not unlike the difficulties which the controller's office sometimes gets into when it has the Systems Department doing accounting trouble-shooting; usually, they soon wind up doing more trouble-shooting than system work.)

It is probable that research directors would rather not have trouble-shooting assignments. It is certain that anybody attempting costing and evaluation of research would do well to be sure that the various activities charged as research are carefully spelled out.

Measuring and evaluating research has created a host of other problems for many companies. It is unquestionable that research people are engaged in an occupation that is not easily measured. In addition, they are usually people whose interests are predominantly in the direction of intellectual accomplishments, rewards, and recognition. This does not mean that financial rewards are of no interest to them, but that other considerations frequently carry more weight.

Because scientific advances constitute the obvious satisfaction to be set against the uncertainties of their pursuits, research people tend to resist the application of financial yardsticks. But this need not necessarily handicap the financial appraiser. Their desire for the means to exercise their talents can be turned around to his advantage since on him depends in part the allocation of funds.

However, there are real difficulties because of the type of personnel employed in research to whom financial restrictions are unreasonable and whose work produces so much growth or benefit that is of an intangible nature. Attempts to evaluate their efforts run all the way from full acceptance of the cost of research if the company in total stays ahead, down to the condition that everything be exactly measured by a formula which is sometimes peculiar to the organization using it.

In other words, there is no consensus with respect to evaluation. The universal consideration of the need for evaluation seems to be new and probably related to the cost price squeeze.

INTEGRATION OF RESEARCH AND OTHER CORPORATE PLANNING

Yet the need for evaluation must be quickly met and evaluation techniques must be developed to relate research activities and planning to long-range corporate goals. Evaluation of research must

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begin at the front end, not at the back, and it is possible only if there is preplanning. Unless there is a corporate long-range plan and unless there is satisfactory coordination of the plan and the research effort, evaluation tends to be largely a combination of mathematical exercise and general disagreement.

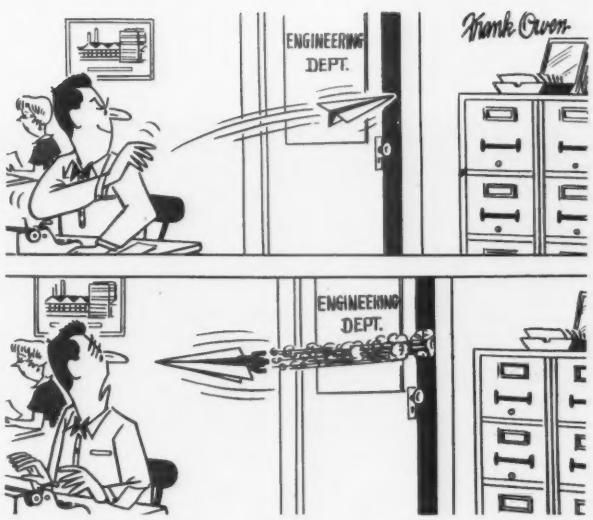
Sometimes there is a corporate long-range plan in existence, but the results of the research department's labor turn out to be only indirectly related to the agreed-upon future needs of the parent organization. Here the would-be evaluator can go astray in opposite ways. He can decide that it is futile to try to apply any dollar measurement to those results. Or he can try so many yardsticks that the research effort is constricted out of existence. (The latter is the fear of the true research man and should alarm any controller who has sympathy for the ambitions of research.)

Every condition between these two extremes is encountered at present among corporate evaluation programs. Perhaps those that have hit upon the happiest and most judicious compromise have done so by eliciting the assistance of all concerned in the program.

There needs to be a plan for the future which has been developed through the combined efforts of all departments, including research. The plan should be one which has been approved by the company's top management after it has considered the plan's practicability and attainability. With this plan as a basis, research's general direction is pointed out, and as specific possibilities come up they can be intelligently pursued or rejected. Commonly, within each company, there is basic research activity, and after this fundamental research there are essentially two principal areas: First, the pursuit and development of products or processes new to the company and second, the improvement of products already in the company line. Without a long-range plan to indicate what the company wants to be and do, it is difficult to select the fields of fundamental research and certainly difficult to select the particular projects for full development.

If there is a company long-range plan, and if research effort is directed towards dovetailing with the plan, then subsequent evaluation of accomplishments, although never easy, is certainly more straightforward. Without a plan there is likely to be a great deal of unproductive searching and impractical consideration of things that are irrelevant.

It is most common in industry to fail to direct research efforts to bring about the objectives of the whole corporation. Too often the research dollar is spent wholly in unproductive areas or disproportionately among productive ones. Robert K. Stolz told in a *Harvard Business Review* article of "one company [which] found that close to 35 per cent of research and development time had been spent on projects that had proved useless to the company and whose uselessness could have been anticipated before the project was undertaken."



There is little point in developing products that are entirely foreign to the skills and business experience of the company unless it has planned and is prepared to go into these new lines. There is certainly no point in developing something which the company cannot or does not choose to finance. There is no value other than intellectual exercise in improving a product beyond the quality necessary to please the consumer, and no system of evaluation will give it any other value.

SELLING EVALUATION TO RESEARCH PERSONNEL

Assuming that the company has the basic start towards planning and evaluation, there are some things which are necessary in the way of education. Again, this probably has something to do with the unique characteristics of personnel in research. As a group they are different from other company personnel, but this does not suggest that management principles cannot be communicated to them or need be altered for them.

A Booz, Allen & Hamilton survey, quoted by C. Wilson Randle early in 1959, indicated that there are three groups of characteristics which usually stamp the research scientist and engineer.

"As a group they are younger than other company personnel. According to the study, 79 per cent are 40 years of age and younger, and 35 per cent are between 20 and 30. This youthfulness creates problems in training and development.

"[They] are relatively less experienced. Some two thirds have ten years or less research experience, while more than a third have less than five years. This lack of experience places a considerable premium on supervision.

"They are better educated, with 94 per cent having one or more college degrees. This evidences high intelligence, which in turn spawns high criticalness. Research and development personnel are generally more critical than other company employes."

Obviously, some effort is going to be necessary to sell such a group on the idea of putting a price tag on everything. But, equally obviously, such an intelligent group must finally respond to any approach based on sweet reasonableness.

In short, research people are likely to be enthusiastic supporters of efforts to evaluate when—and only when—they know what is being done and why. One might begin by making it possible for research executives to become thoroughly informed about company operations and finances. While the top research man has entrée to the financial details presented to top management, it is now all too frequent that his subordinates are somewhat financially uninformed. They should be supplied with information about product profitability so that they may help select the fields where their work is most likely to enhance the corporate profits.

(Continued on page 82)

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Regular statements showing trends of profit by products and by plants should be furnished to research executives down the line. Other statements of information about operations should be given to them also. Supplying these men with this information does two things: First, it alerts them to opportunities for improvement of profit ratios and acquaints them with product lines which may be dying and should be replaced; secondly, the practice informs them of the availability or lack of profits or funds for their use.

Although a fully informed research department probably will not resist efforts at evaluation, there is another way to sell them on it. One can convince research that through economic evaluation comes a substantial part of recognition and reward.

Of course to an honest-to-goodness research man a Nobel prize or some other world famous award surmounts everything else. Nevertheless, in the business of making a living and getting along from day to day he may see the necessity of settling for more mundane things. He also may be led to see that, in addition to these personally attractive advantages, additional funds for research may result from an effective program of evaluation.

A TYPICAL PROGRAM AT ALLIED CHEMICAL

The program at Allied Chemical Corporation is similar in many respects to that followed by others. The company prepares a budget of research activities for the coming year in order to set up allocation of funds. This budget covers the three principal fields of research; fundamental, new products or processes, and cost improvements. It is in the field of fundamental research that most of the fun begins with respect to evaluation.

Yet fundamental research should provide most of any company's new items. To measure it is a highly theoretical thing, and there is probably no real test of its accomplishments except by making sure from time to time that new ideas are forthcoming. Certainly enough new ideas should emerge to keep the rest of the research body active with profits.

To the best of the writer's knowledge it takes from five to seven years before an idea gained at this fundamental level of research can begin to pay off the organization in which it arose. Since the extent to which a company can or will spend money on basic research relates only to its philosophy and ability to spend, and since no two corporations are quite alike, there is no rule which will suffice.

Because one cannot evaluate this fundamental research until many years after the money has been spent on the problem, perhaps the only thing to do is consider what overhead for basic research one's specific research projects and corporate profits can carry. If specific research projects can still pay off carrying a loading for basic research costs, this is one way to approach the propriety and extent of spending for basic research.

The other test, which is not only financial, is the test of keeping new projects coming along. Certainly there should be an abundance of ideas so that a selection is possible and obviously some of these ideas must be good ideas or the research is in vain.

Once it has been decided how to record or evaluate this basic research, then the problems of evaluation become simpler. Generally at this point there is assignment of a research team to development of a project, and proper compilation of the costs of research work is not afterwards so complicated. Subsequently, when the idea is marketed, the additional income which it brings to the company can be applied against the cost, and the benefits recorded.

Allied's budget, prepared in the early fall, shows all the projects on which research is working; it gives a history of those which have been finished up to some years previously and cites the benefits which are being harvested. For projects not completed or just beginning, the budget shows the assignment of manpower, materials, and equipment with overhead. These are recorded until completion of the project, whether the project relates to the development of new products and processes or to cost improvement.

More important than this mechanical budget preparation are the steps which guide research in its decision as to which of the projects to pursue. At Allied proposals from any source find their way to a committee for consideration, and it is the composition of the committee that is of interest and importance here.

Before any item is pursued and money spent, there is an opportunity for the sales, production and related groups—through their representation on the committee—to offer opinions to research representatives about the practicability of proposals.

The committee expects to, and does, reject projects which it considers unattractive. But once the project has been accepted as an item for development, it then moves along to the planning research group which enlists the assistance of every staff function in the organization. It is at this point that project expenditures are identifiable and that survey committee approval for the necessary spending of funds is obtained.

The elements which have been considered then, before the research organization really begins to roll, are the suitability of the item in the corporate plan, the likelihood that the product can be sold at a profit, and its relationship to other company lines. The engineering and production departments have considered their problems and prospective financial appraisals have been supplied by the accounting department. The legal problems, the purchasing problems, and the traffic problems have also been covered.

After completion of the various research projects, the survey committee again considers what has been done, rejects some of them, and passes the rest to the next department for commercial development.

WHICH RESULTS ARE MEASURABLE

In summary, one might say that while there are acknowledged and important intangible advantages through research which contribute to the national well-being and to the advancement of pure knowledge, the expenditures of corporate funds for research should generally be measured on the basis of tangible benefits expected. Admittedly this can be difficult, but with the cooperation of the top research people it is a most worthwhile practice. It forces appraisal of research performance and certainly makes apparent those projects which have only obscure financial rewards.

Management should know where and how well all research is spending time and money. In the first place, research *must* be evaluated—for its over-all contribution to the corporate profits and for its own health and prosperity. Secondly it *can* be evaluated—perhaps not perfectly but reasonably—if accurate costs are maintained for its different phases and if proper plans of research activities are matched to good corporate plans.

SOMETHING NEW HAS BEEN ADDED

To remain competitive in business does not mean just lowering the price; it means creating new improvements concurrent with consumer demands according to the vice president of GE and general manager of Hotpoint division. In creating its 1961 kitchen-laundry line, GE's outlay ran to the tune of some $8 million: $2 million for new designs and engineering; $5 million for new tools; and $1 million for re-arrangement of their plant equipment.

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BARRON'S – *National Business and Financial Weekly*

From an address delivered by Arthur B. Toan, Jr., of Price Waterhouse & Company, New York, before the Ohio Society of Certified Public Accountants

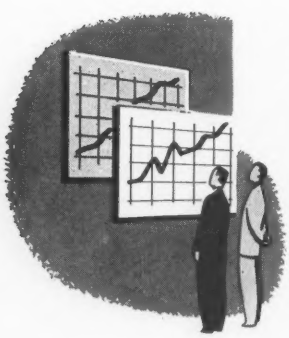
The Accountant as Part-Time Controller

A SMALL BUSINESS is almost always characterized by an imbalance in the managerial skills which are available to it. Most small businesses are started and continue because the owner or manager of the business has considerable talent in sales or in manufacturing, and/or less frequently but often very importantly, creative ability in the field of research. Stated in reverse, it would be a rare situation in which a small business could really succeed without the presence of substantial ability in one or more of these areas.

Skill in accounting and finance cannot create or sustain a small business—it can only support it. As a matter of fact, the presence of real skill and ability in accounting and finance in a management whose prime talents lie in the field of sales, manufacturing, or research tends to occur so infrequently that it comes close to being unusual when it happens.

The fact of the matter is that most small businesses (i.e., more than 90 per cent) do not have adequate abilities in the areas of accounting and finance. They not only do not have adequate talents in these areas, but they cannot afford, in most cases, to acquire such talent on a basis which requires that it be in the persons of full-time employes of their company. They cannot, in other words, put on their own payroll an individual who can provide a well-developed, self-sustaining financial function as we know it.

NO CLASS OF PART-TIME CONTROLLERS



What these small businesses would probably be most interested in engaging is a part-time professional controller, if there were a class of professional controllers who moved from company to company. But the fact is that there is no such class of part-time professional controllers. The small businessman therefore turns quite naturally, outside his organization, to his accountant, his banker, and his business friends; but largely he turns to his accountant. He turns, for financial and accounting assistance, to a person whom he has come to know and to trust and who quite probably has a more intimate knowledge of his business than have his other potential advisors.

If, however, as was implied earlier, the businessman would really be more interested in engaging a part-time controller with some auditing ability than in engaging a part-time auditor with some controllership ability, there is a great deal of value in looking at what the role of the controller is, or what the controller believes his function to be.

(Mr. Toan here recapitulated the various aspects of the controllership function almost exactly as they appear on the contents page of this magazine.)

The statement of controllership functions suggests a great deal about the outside accountant's position as advisor to small business. Many accountants seem to believe that giving advice to the small businessman means primarily giving advice on ways and means of improving clerical procedures. They feel that improving the method of preparing the payroll or of maintaining the accounts receivable record, to cite two examples, is what the businessman wants and expects from his accountant.

It seems doubtful that this is really the case. There are very few small businesses which rise or fall, succeed or fail, on the basis of the quality and effectiveness of their clerical procedures. There are very few small businesses whose profitability is even greatly influenced by the economy with which the clerical work is performed.

HELP WITH MANAGEMENT THE REAL NEED

The small businessman will accept with pleasure suggestions for reducing clerical costs, but he would really like—and he really needs—something quite different. He needs help with the management of his business.

The important areas, the areas of major significance, the areas of major value to the small businessman, the areas to which top priorities should be assigned are those which relate to planning and controlling the business, properly analyzing and interpreting the results of operations, and so organizing and staffing the company with qualified individuals that the desired results can be achieved.

If the outside accountant can get his small business clients to plan, to control, to organize, and to operate on the basis of sound, quickly available information, he will be accomplishing a great deal. He will be helping management fix upon realistic objectives and to measure the relative value of different alternatives available to it. He will be helping the small businessman to budget the use of funds, to establish an organization capable of carrying out his plan and to assign to it the resources required for the purpose. He will be helping the small businessman to have available sound information on which to base decisions and by which to measure

results against plan. And he will be helping to make sure the small businessman uses correctly analyzed and interpreted information and draws the correct inferences from it.

GIVING ADVICE ON TECHNIQUES AND PROCEDURES

Reverting to the need of the small businessman to have the equivalent of a part-time controller, a new element appears, however. Planning and control and management information have two quite separate, yet very important, aspects. First, there is the establishment of the technique or the structure or the process by which planning and control are accomplished and management information is provided. The establishment, for example, of a procedure for creating a long-range plan, or a budgeting procedure, or a cost system, or a technique for preparing informative reports, or a pattern for interpreting operating results, involves important considerations of systems and methods, of accounting principles, of techniques, of forms, and so forth. It is virtually impossible to have a good planning and control system or good management information without good techniques and good procedures.

The outside accountant in even a large company is often asked to assist in the creation or revision of systems of management information, of procedures for planning and control. In most instances, he is asked to do this because the individuals in the organization lack the time or lack the specific skill, or because a new point of view is desired, or because a political situation exists which makes it difficult for employes within the company to engineer the change. All these reasons are present in the small business as well, and they are equally valid there.

However, in a large company it is in almost all instances true that the outside accountant's responsibility ends with the creation of the system or the procedure and that from that point on the company itself is able to "put the flesh on the bones" and to create the plan or the budget itself, to report on the operations, to interpret the results, and to suggest the changes which should be made.

It seems quite doubtful, however, that the same situation exists in many, if not most, small businesses—and this is the second aspect of the problem. The accountant has the choice of restricting his participation to the creation of the systems and the procedures and the structures but this is a choice which he can often exercise only with great difficulty, because the small businessman, wishing to rely on the knowledge and experience of the accountant, wants him to assist and to assist very extensively in the creation of the plan and the budget itself, in the interpretation of the results of operations, and in providing counsel on actions to be taken. The accountant, in essence, is being asked to assume some of the controllership role discussed before.

WHERE ADVICE-GIVING ENCROACHES ON MANAGEMENT ITSELF

Several things become quite clear. The giving of advice on the actual substance of the plan or the budget, or the actual interpretation of results, requires a higher level of business judgment than does the creation of the procedure itself. The accountant may be more capable of the one than of the other. On the other hand, in many instances when the accountant does give advice, the combination of lack of knowledge on the part of the small businessman and the respect in which the accountant is held, may bring about a situation in which the latter's advice is so readily accepted that it comes close to representing a decision on behalf of management.

The importance of the advice and the relative lack of knowledge on the part of the businessman thereby imposes on the accountant a responsibility to see that, when he does choose to give advice, it is of such high quality that it can compensate for the relative lack of ability or understanding on the part of the small businessman. Or, if the accountant is not giving advice but only expressing a feeling or a tentative opinion, that it be clearly labeled as such—and that the businessman be urged to get other expert opinion if he needs it.

To state the same thought in another way: The small businessman is in financial affairs frequently not too much more knowledgeable and capable of challenging the advice which he receives than the average patient is of challenging the prescription which he receives from his doctor. If the accountant gives the prescription, he should be sure he knows his medicine.

It is, therefore, incumbent upon the accountant as an individual, and upon his profession as well, to make a real effort in the following ways:

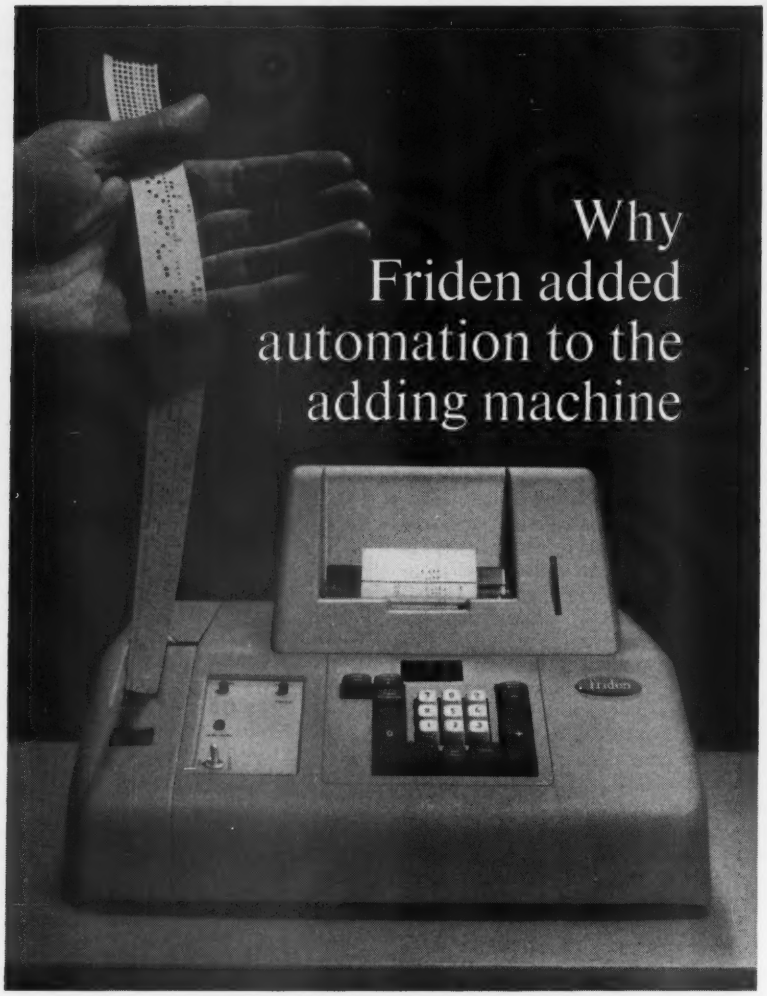
1. To undertake work only in those areas in which it is sure of its competence.
2. To strive constantly to raise its level of competence in those areas in which it is to give business advice.
3. To clearly distinguish between advice and its less certain brethren, opinion and feeling—not hesitating to suggest that the assistance of others be obtained when desirable.
4. To have an understanding with small businessmen that there is a point beyond which the outside accountant cannot reasonably go in serving as the unofficial semicontroller of the business, without encroaching on the management function itself.
5. Perhaps most interesting of all, to undertake, through the auspices of the American Institute of Certified Public Accountants or the various Controls of Controllers Institute of America, a program by which small businessmen can get a sufficient understanding of managerial accounting and finance to carry out acceptably some of the functions of the controller which might otherwise fall on the accountant.

(Continued on page 86)

THE CHANGING ECONOMIC PICTURE FOR SMALL BUSINESS

In the first six months of 1960, programs developed to help small firms meet changing economic conditions were offered by the Small Business Administration and cooperating educational institutions. A total of 157 co-sponsored administrative management courses were attended by 4,900 small business owners and managers. Research grants awarding funds were given to 53 educational institutions and state agencies to carry out a wide range of research studies related to small business problems.

Tied in with the programs, assistance through publications and conferences resulted in businessmen obtaining more than 900,000 copies of SBA's publications covering a wide variety of management subjects. Two conferences were held to specifically inform small manufacturers of opportunities in export trade to increase their productivity.



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SALES, SERVICE AND INSTRUCTION
THROUGHOUT THE U. S. AND WORLD

(Continued from page 85)

THE EDUCATION OF THE SMALL BUSINESSMAN

It would be well to explore the last suggestion a bit further. There are indications of how great the hunger of many businessmen is for knowledge of this type. A great opportunity exists to find some way of supplying it. The businessman would not, of course, acquire the technical skills of the certified public accountant; he would, however, gain an understanding of the managerial use of accounting. It seems quite probable that this can ultimately be accomplished most effectively either at seminars conducted by CPAs or industrial controllers for small groups of small businessmen or on the client's own premises by the combination of a seminar and something approaching on-the-job training where the outside accountant consciously works with the businessman to expand his knowledge.

The education of the small businessman will, in the long run, help answer the dilemma which sooner or later will be faced by every outside accountant—that of drawing a line beyond which he dare not go because the nature and the importance of his advice is so great that he becomes part of management rather than an independent auditor.

Little Business Goes Big Time

The National Cash Register Company has opened what it calls a new kind of automation center making computers available for the first time to businesses as small as a neighborhood grocery store with only one cash register. The cost of the service will run as low as $25 a month; up to now charges for computers in centers set up by other producers have rarely run less than $1,000 a month.

Based on data supplied by customers, the computer will give small and medium-sized retailers a daily picture of their sales for the first time and enable them to place their operations on a much more efficient basis than was ever before possible.

The centers, the first of which was recently opened in New York, will later be established in more than 100 cities throughout the country. The NCR 390 unit to be used in the centers, which sells for $75,000, will be equipped to handle paperwork for small manufacturers, financial houses and other enterprises. The centers will be able to turn out an analysis of 50,000 sales in an hour. In less than an hour the local computer will be able to prepare a payroll of a company with 250 employes.

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Transfer Prices and Profitability Measurement

Robert W. Boyd

IT IS commonly recognized that the normal business venture is entered into for the purpose of earning a profit for those supplying the risk capital. Although a business enterprise has a variety of other responsibilities, including those to customers, employes and the public, these responsibilities cannot be met unless the business is able to earn a reasonable profit. The success of the venture is ordinarily measured in terms of profit, which when related to invested capital gives an indication of comparative return.

As we all know, it is customary to furnish stockholders and others outside the management group with periodic financial statements which report on the financial condition of the company and the results of the operations on an overall basis. From the stockholders' point of view, interunit transfers of products or materials are merely movements of inventory from one location to another and no profit is recognized when such internal transfers occur.

As a result, the conventional practice has been to price interunit transfers for this purpose at cost. When any other basis of pricing is used, it is necessary to eliminate from consolidated inventories any unrealized profit that may be included as a result of such practice.

A NEW CRITERION FOR PRICING TRANSFERS

In the past, financial reporting considerations were often the decisive factor in determining the basis for pricing interunit transfers. Today, this point of view still prevails in some companies, but most of the larger companies have come to regard usefulness of information for managerial planning and control as of primary importance.

Today, many business organizations consist of a number of divisions, plants, warehouses and sales branches which have been established on a more or less autonomous basis to gain the advantages of decentralized management. The larger organizational units are often separate profit responsibilities and as such constitute separate accounting entities for management purposes.

In view of recent developments in the pulp and paper industry, for example, consideration of the problems relating to transfer prices as they affect the measurement of profit has become a practical necessity. Companies have set up production facilities for raw materials, pulp, paper, paperboard and various converted products, and in some instances distribution facilities have been established as well. At the same time there has been a trend toward decentralization of physical operations, with the establishment of separate plants to produce specific products which frequently are transferred to other units of the organization for further processing or sale.

In some instances, decentralization has led to the establishment of subsidiary transfers accounted for as sales and purchases. In other cases, decentralization is accomplished within the framework of a single company and the problem arises as to how to account for inventory transfers between divisions, plants and other units of the organization.

RESULTS OF NAA'S STUDY

The results of a study of this problem made by the National Association of Accountants were reported in a paper entitled "Accounting for Intracompany Transfers," which was published in 1956. The comments which follow are supported by that report.

It is pointed out that a decentralized organization functions best when financial goals are established for each organizational unit, and performance is compared with those goals and reported to the responsible manager and his superiors on a regular basis. In general, two types of managerial responsibilities may be established: (1) Responsibility for costs or sales, but not for profit, and (2) responsibility for profit and return on investment.

The study showed that where management is decentralized, major organizational units are usually set up as profit responsibilities. Even in integrated companies it is not unusual for a substantial portion of a division's production to be disposed of by interunit transfer and again it is customary for such units to be established as profit responsibilities. It is obvious that the manner in which transferred goods are priced has an important effect on the profits of both the supplying and receiving units.

One of the aims of management decentralization is to introduce competition as an incentive to profit consciousness and effective management throughout the organization. Experience seems to show that the pricing of interunit transfers at cost does not foster profit consciousness because the supplying unit is assured of recovering its costs. Only where prices for interunit transfers are established on the basis of a competitive market can income attributable to individual profit responsibilities be measured adequately.

• Mr. Boyd is controller of Weyerhaeuser Company, Tacoma, Washington.

12 WAYS TO DETERMINE THE ECONOMIC CURRENT

Which way the economic wind will blow in the next few months is a favorite guessing game of economists, business men and investors.

The National Bureau of Economic Research offers the following leading indicators, which tend to move up or down before the general trend of business turns:

The average factory work week.
The rate of hiring in the manufacturing industry.
The lay-off rate.
The new orders received by manufacturers of durable goods.
The number of new homes started.
The new contracts placed for commercial and industrial construction (measured in floor space).
The net change in the number of businesses.
The business failure liabilities in dollars.
The corporate profits after taxes.
The Standard and Poor's index for industrial, railroad and utility common stock prices.
The change in business inventories.
The prices of industrial raw materials.

AUTONOMY FOR EACH RESPONSIBILITY UNIT

Measurement of performance by profit responsibilities requires separation of costs and revenues for each responsibility unit. This is comparatively easy to accomplish in the case of a completely autonomous unit having its own plant and sales organization, but the existence of jointly controlled facilities serves to complicate the problem and tends to weaken the effectiveness of profit responsibility accounting. Arbitrary allocations of service department costs and expenses of home office administration have the same effect.

The accounting system should be designed to provide for direct accumulation of costs and revenues for each responsibility unit insofar as possible. It must be recognized, however, that decentralization cannot be carried to the point where all joint costs are eliminated. Common service departments usually exist and expenses of centralized administrative departments must be absorbed by the operating divisions of the company.

The NAA study showed that organizational units created to render services to other units of the company are usually treated as cost responsibilities rather than profit responsibilities. The nature of some services is such that it is difficult and sometimes impossible to determine a competitive price. Here the position is frequently taken that it is not management's intent to make a profit on such services, or that the company is not in the business of selling the services in question.

A FOREST PRODUCTS INDUSTRY'S SET-UP

The company the writer represents is engaged in diversified operations within the forest products industry. It manufactures and sells lumber, plywood, hardboard, particle board and other related products, as well as both kraft and sulphite pulp and paperboard. A substantial portion of the paperboard produced is further processed into shipping containers and milk cartons at various converting plants located near the major markets for these products. A portion of the lumber and plywood produced is distributed through wholesale yards and warehouses which again are scattered throughout the country. Some lumber and plywood fabrication also takes place.

It is apparent that this is an integrated company with raw materials and products being transferred from one unit to another for further processing or for sale. It is also an example of decentralized management, as authority to make decisions has been placed as near as possible to the locations where actions take place.

Of the company, it can be said in general that major organizational units have been set up on the basis of profit responsibilities. Each unit constitutes a separate accounting entity, and, almost as a corollary, interunit transfers are priced generally on the basis of market value, whereas transfers between departments within a plant are ordinarily made at cost.

The company produces a substantial portion of its raw material requirements from its own forest lands. Although the raw materials—that is, the logs and cordwood—are all produced at the same average cost, they have widely different values due to variations in quality. Obviously, if these raw materials were charged to the various plants at cost, it would not be possible to determine accurately the amount of profit contributed by each such plant operation.

APPROXIMATING A FAIR MARKET VALUE

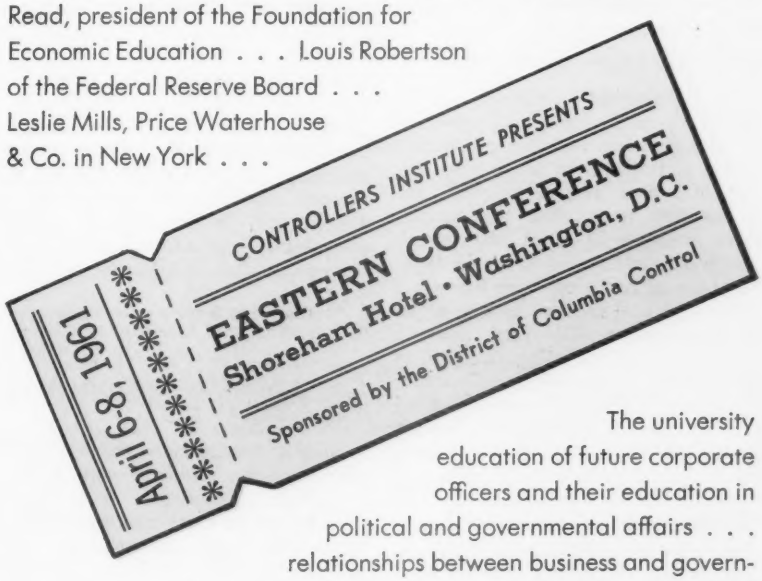
The solution, transfer prices based on fair market value, happens to be particularly hard to arrive at in the case of this particular industry. In the Pacific Northwest there is no bona fide log market on which to base such values. The company believes, however, that even though its transfer prices cannot be completely accurate, they should still reasonably approximate market value and recognize within reasonable limits the differences in value between the various species and grades of material.

Transfer prices, once they are established, are altered only when there are clear indications of a definite change in the market. They are not altered to conform to the many day-to-day fluctuations in supply and demand, since the company feels that it will obtain the desired results from them so long as they *reasonably* approximate market value.

It tries, in other words, to serve the purposes which underlie decentralized profit control responsibility even where it is necessary to improvise and approximate in order to do so. These purposes have been defined more clearly than the writer could summarize them, in a statement made by Paul E. Holden, professor of Industrial Management of the Graduate School of Business, Stanford University:

"The objectives of a multiple application of profit and loss accountability through product or regional divisions are forthright and timely. An effective means of top-management control is established. Widespread, complicated, and unwieldy operations are broken down into more manageable segments. A desirable element of flexibility is given to the organizational structure, i.e., divisions can be added or eliminated without serious disruption to the basic organization structure or the plan of management. A relatively simple basis is provided for establishing some program of profit-sharing as supplementary executive compensation. Finally, more broad-gauged men are thus groomed for the general management function."

Drew Pearson, syndicated columnist . . . Thomas H. Carroll, president of George Washington University . . . Leonard Read, president of the Foundation for Economic Education . . . Louis Robertson of the Federal Reserve Board . . . Leslie Mills, Price Waterhouse & Co. in New York . . .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Paging the New Books

MIDWINTER NIGHT'S READING

Work Improvement*

By Guy C. Close, Jr.

Broad in scope, this book is intended for application in offices and service organizations, as well as industrial plants, and is divided into five major parts.

The first part is meant to build the proper mental climate for an approach to cost reduction, the goal of work improvement; methods of selection and definition of the work problems to be solved are considered in Part Two; Part Three gives instruction in the use of the various analytical tools available to record and study the details of the problem; principles and methods of the creative activities are explained in Part Four; and ways and means of getting action on the selected method or application are discussed in Part Five.

** Published by John Wiley & Sons, Inc., 440 Park Avenue South, New York 16, N. Y. $7.75.*

Cost Administration: Cases and Notes (Accounting for Cost Control and Product Decision)*

This book provides a collection of cases for the study of the process of collecting and reporting data for use in effective planning and control of the internal activities of a firm. The purpose of these case materials is to offer the student, whether in college or on the job, a means of developing and testing his understanding and use of cost accounting through a series of analytical experiences with actual business situations. The cases cover a variety of internal operating problems as they existed in the companies cooperating in the case development (Alan Wood Steel Company, Crane and Company, Inc., and the Raytheon Company, among others), and emphasize the breadth and the interrelationships of accounting services to management.

The scope of coverage is designed to provide opportunities for the development of skills in the determination of the informational needs of top management and in the presentation of the data found to be required. Specifically, it includes: (a) traditional activities of cost accumulation and reporting in job-order and process operations, with consideration of actual, standard, and direct costing techniques; (b) interrelationships of production, inventory, and cost controls; (c) development and application of budgetary control procedures; and (d) design and implementation of systems. The latter area provides coverage of the management service activities of public accounting firms and the management implications of advances in the field of data processing.

** Published by Prentice-Hall, Inc., Englewood Cliffs, New Jersey. $10.00.*

Readings in Auditing*

Ed. by James T. Johnson and J. Herman Brasseaux

Seventy-three articles are presented in this book which is divided into ten sections: Auditing Standards and Their Development; Ethics and Professional Conduct; Auditor Responsibilities and Liability; Reports and Reporting; The Internal Auditing Function; The Audit, Procedures, and Their Application; The Application of Statistical Techniques to Auditing; The Auditor and Electronic Machine Records; The Auditor and Management Advisory Services; and The Profession and the Future. Each section is preceded by brief editorial comments and a supplementary bibliography is included.

** Published by South-Western Publishing Co., 5101 Madison Road, Cincinnati 27, Ohio. $6.75.*

Credit Manual of Commercial Laws, 1961*

Like its predecessors, the 53rd annual edition of this reference work for credit and financial executives is designed to give the gist of legal enactments affecting credit operations. A prefatory Feature Section contains articles on such timely topics as "State Taxation of Interstate Transactions" and "The Language of Automation," while the opening chapter summarizes all new 1960 federal and state legislation affecting business. There follow 30 more chapters on particular categories of legislation currently on the books, the whole adding up to 715 pages of text. The work is cross-indexed by chapter contents and by subjects and states.

** Published by the National Association of Credit Management, 44 East 23rd Street, New York 10, N. Y. $12.50.*

Planning Production, Inventories, and Work Force*

By Charles C. Holt, Franco Modigliani, John F. Muth, and Herbert A. Simon

The authors deal with quantitative methods—i.e., mathematical formulas—for reaching decisions about production planning and inventory control. Their purpose is to show how mathematical and statistical touchstones may be used for such improved planning and control, resulting in decisions of higher quality, made with less effort, than is possible with prevalent methods of judgment based usually on less clearly defined standards of what seems reasonable or what is to be expected. The processes and techniques which their study presents are designed to help progressive management improve service, decrease costs, and reduce inventories.

** Published by Prentice-Hall, Inc., Englewood Cliffs, N. J. $10.00.*

History of Public Accounting in the United States*

By James Don Edwards

The writer's study is believed to be the first such history which has been published. He begins it by outlining the European background of accountancy; then he examines the ways in which, historically, the accounting function has been defined. The balance of his material—that is, the actual story of the progress of the profession in the United States—is in a chronological rather than a topical arrangement, and on a national rather than a regional scale. A particular effort has been made to trace the growth of the accounting profession, not the development of specific accounting theories, and to put less emphasis on interpretation of events than on the events themselves.

** Published by the Bureau of Business and Economic Research, Graduate School of Business Administration, Michigan State University, East Lansing, Michigan. $6.50.*

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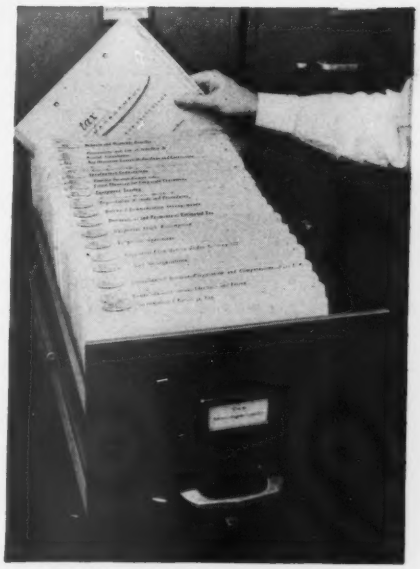

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THIS ELECTRONIC WORLD

Computers Join the Billionaires

Computers and their related electronic data-processing devices became the United States' newest billion-dollar industry in 1960. *What about 1961?* The industry expects another record year. Sales, bolstered by big increases in components and finished products for automation, are expected to reach $10.3 billion.

On the drawing boards at the end of the year were new computer systems that eventually will go into the home for the first time. The systems will enable a housewife to cook a meal, make beds and open and close windows by pushing a few buttons. In the near future automatic equipment will handle landings and take-offs at airports where congestion now makes complete control by humans all but impossible.

The industry is subject to some pitfalls, however—one direct and one indirect: (1) The business, rapidly becoming more competitive among U.S. manufacturers, is threatened with foreign competition—especially from Japan which has already expanded beyond domestic needs of electronic products and is seeking markets elsewhere; and (2) computers and their auxiliary devices have brought on one of the biggest problems this country has to face in the future—temporary unemployment as a result of automation.

The human element with a present-day look at livelihood is beginning to be pitted against the technological over-all view of world advancement; the adjustment will call for the greatest cooperation on the part of labor, management and government until this 20th century version of the "Industrial Revolution," the "Industrial Evolution of business," is completed.

Computers Hold Their Own

Curiously enough, retrenchments in business bite deeper on less expensive labor-saving devices such as electric typewriters, dictaphones and adding machines, than they do on big items like computers. Data processing is still the rage and current figures indicate that computer producers will feel little, if any, of the reluctance to order that has compressed the sales of more run-of-the-mill office equipment.

In the last six years commercial computer sales have shot from $10 million to $390 million for an annual growth rate of about 25 per cent. The minimum growth outlook for the next five years is cited to be some 15 per cent a year. To these figures should be added some $700 million worth of computers ordered by the Pentagon last year.

Computer costs are still high and volume has not begun to offset overhead cost in production, but the industry has got around this by offering to lease its equipment rather than sell it outright. At this point more than three-quarters of all computers in operation are leased.

IBM Forms Specialist Group To Usher in New Computer Era

The creation of a new technical and professional force to lead the way into the next computer era was recently announced by International Business Machines Corporation. The force, initially numbering more than 1,000, is expected to grow to several thousand within the next few years.

Mathematicians, machine experts and industry specialists compose the new data-processing systems engineering organization. The objective of the group is to assure the best system for all IBM machine users and to develop breakthroughs along a wide front in the solution of advanced management and scientific problems.

"Just as the computer has mastered separate, routine accounting functions during the past decade, the 1960's will see it involved in the scientific management of entire businesses and industrial complexes," predicts Gilbert E. Jones, president of IBM's Data Processing Division.

The newly established systems engineering group will work closely with the sales organization as well as with current and potential computer users to achieve such solutions for them, as well as for industry as a whole. This group will operate throughout the company's Data Processing Division at the headquarters, regional and branch office level. A broad range of specialties is recognized within the total framework. For example, a systems engineer might be designated "systems engineer-scientific," "systems engineer-process control" or "systems engineer-banking." These titles reflect the skills, qualifications, and training necessary to develop advanced applications, such as process control, for a number of industries or an application, such as an optimum food-blending operation, for a single industry.

The elements of systems engineering include defining a data processing problem, arriving at a solution in the form of a concept, specifying the necessary equipment to put the concept to work, integrating equipment, people and procedure into a working system, and helping the user to prove out the solution in operation.

In addition to the new group, IBM also announced a supporting educational program offering training in depth. Advanced formal courses will be given to systems engineers working in special fields. The recently opened IBM Research Institute provides graduate-level studies. The Institute, first of its kind, will soon graduate its initial class.

Lockheed Operates Biggest Private Wire System

A private telephone and wire system involving 100,000 miles of lines, leased from 15 major American telephone companies, went into operation recently linking 65 Lockheed Aircraft Corporation plants and offices across the country. Direct wires connect headquarters in Burbank, California, with all divisions, subsidiaries, branch offices and affiliates.

The integration over the last 11 months of private lines leased by Lockheed since World War II not only speeds voice conversation but also permits transmission of data from computers and other business machines from one installation to another instantaneously. This will mean substantial cost savings, according to the company, which produces missiles, space vehicles and a wide variety of electronic equipment.

CALCULATOR FLUNKS 560 AND IS FLUNKED IN TURN

A dozen or so undergraduates are back in classes at Kent State University in Ohio because the faculty discovered that a calculating machine had flipped its digits.

The machine is fed a perforated card for each course, for each student. It calculates a student's over-all grade for the university quarter.

Over the holidays dismissal notices were sent to 560 of the school's 7,608 students. Some of them couldn't believe they had flunked, and checked with their deans. Ten to fifteen won reinstatement.

Repairs have been made on the machine and thousands of cards are being run through again to recalculate the grades.

LONG SHOTS & CLOSEUPS WITH THE CONTROLLER CAMERA

St. Louis, Mo.

On November 22, 1960, members of the St. Louis Control of Controllers Institute of America celebrated the Control's 25th anniversary at a dinner held at the Hotel Statler. Total attendance was 63 comprising 48 members and 15 guests. Former Control presidents attending were: Clarence V. Burns, Henry F. Chadeayne, Charles E. Ehrhardt, Grant F. Goddard, Harry F. Harrington, Joseph C. Huehn, Paul L. Jacoby, William J. Matthews, Jr., Warren P. Metz, George A. Ober, Morgan I. Pitcher, R. Dale White, and Earl J. Wipfler.

(TOP LEFT)

At the head table were Control President Louis J. Meiners *(center)* flanked by Paul Haase, managing director of the Institute *(left)*, CIA President Frank S. Capon *(right)*, and St. Louis Control members and officers: James A. McCollum, secretary-treasurer, William J. Banks and Joseph H. Cinnater, vice presidents, and William E. Gallagher who served as chairman of the affair.

(CENTER LEFT)

An informal shot of the cocktail hour that preceded the anniversary dinner.

(BELOW)

Paul Haase *(left)* reviewing the history of Controllers Institute from its founding in 1931 with 30 charter members to 1960 when it is international with 53 Controls (five of which are outside the United States) and a membership of 5,245 members. Mr. Capon *(right)* gave an interesting talk on the controller's responsibility for preserving the free capitalistic system and the role the Institute hopes to play in defending the system throughout the world.

LONG SHOTS & CLOSEUPS WITH THE CONTROLLER CAMERA

New York, N. Y.

(TOP LEFT)

Continuing the practice of the last several years, the presidents and executive directors of five national accounting organizations met on January 13 to discuss programs, activities and common goals. Under the principle of rotating sponsorship, the American Accounting Association was the host at this meeting. Around the table *(clockwise beginning at the upper left)* are: John L. Carey, executive director, American Institute of Certified Public Accountants; Arthur B. Gunnarson, secretary, National Association of Accountants; George A. Hewitt, president, National Association of Accountants; Frank S. Capon, president, Controllers Institute of America; Paul Walgenbach, secretary, American Accounting Association; A. B. Carson, president, American Accounting Association; Louis H. Pilie, president, American Institute of Certified Public Accountants; Paul Haase, managing director, Controllers Institute of America; Bradford Cadmus, managing director, Institute of Internal Auditors; and C. A. Nagle, president, Institute of Internal Auditors.

(CENTER LEFT)

At a recent meeting, Dr. Michael Schiff *(second from the left)*, author of the forthcoming book, *The Controller and Marketing Management*, conferred with L. C. Guest, Jr. and W. Joseph Littlefield *(left and extreme right)*, respectively president and research director of Controllers Institute Research Foundation, and with Arthur L. Boschen, head of the Institute's advisory panel on marketing. The Foundation will publish Dr. Schiff's book some time in 1961.

Chicago, Ill.

(LOWER LEFT)

A luncheon honoring Thomas W. Bryant and Charles Z. Meyer, both of Chicago, was held in the Union League Club recently, following announcement of their retirement. Mr. Bryant, who held the position of general controller of the Cuneo Press, Inc., is now serving as a consultant to the company and will shortly announce other plans for retirement activity. Mr. Meyer, previously senior vice president and comptroller of the First National Bank of Chicago, is now serving as chairman of the board of the Upper

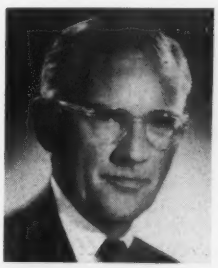
Avenue National Bank, Chicago. Mr. Bryant is a past president of the Chicago Control of Controllers Institute and a past Institute director. Mr. Meyer, also a past president of the Chicago Control, was Institute president, 1951-52.

The luncheon was arranged by James L. Peirce *(seated center in the background)*. Mr. Peirce, president of Controllers Institute, 1957-58, and a past president of the Chicago Control, is vice president-finance of A. B. Dick Company, Chicago.

Those present at the luncheon included past presidents of the Chicago Control, as well as past Institute presidents resident in Chicago. They are *(from left foreground)* Raymond R. Giesecke, E. W. Burbott, Frank J. Ellis, Herman W. Stein, C. E. Jarchow, Gordon B. Rockafellow, Mr. Meyer, Mr. Peirce, Mr. Bryant, T. P. Carley, L. B. Buchanan, J. W. D. Wright, G. B. Whitfield, Paul Haase, managing director of Controllers Institute, C. F. Axelson and A. J. Hoefer, current president of the Chicago Control.

Indianapolis, Ind.

Frederick M. Hadley, 53, executive vice-president of Eli Lilly & Co., has retired to become vice president of Wabash College in Crawfordsville, Ind.



MR. HADLEY

Mr. Hadley said, "I have long been deeply interested in the field of education. I feel that to wait until age 65 to start a new career would be to delay too long."

Mr. Hadley became eligible for early retirement under Lilly's pension plan in August 1960. He will take charge of Wabash College's personal development program for young executives and the school's ten-year $20 million development program.

"Compulsory Retirement a Must," says Randall

THE MAN President Eisenhower recently called "the most 'unretired' retired business man" in his administration offers a rousing defense of compulsory retirement in the December issue of *Dun's Review* and *Modern Industry*. Clarence B. Randall, former chairman of the board of the Inland Steel Company and a special White House advisor on foreign economic policy, warned readers of the D&B business magazine against "selective" retirement, "the choosing of some to stay on when others are handed the gold watch of dismissal."

No matter how scientifically the choice is made, without compulsory retirement there is always dissension about which older men should be eased out. Randall notes in "The Myth of Retirement," latest in his "Folklore of Management" series, that "the youngsters think they all ought to quit. Those who are approaching retirement themselves think they all look good." The door is open to "a flood of recriminations, rumors, and backstage gossip about the injustice done."

Whatever age set for compulsory retirement—and Randall thinks today's common limit of 65 may be revised in years to come—he believes company presidents should be no exception to the rule. For board members he suggests a retirement age of 72: "Nothing," he writes, "is more embarrassing or pathetic than the struggle some corporations have to go through in trying to lose rich but senile directors."

Many men at 65, 70, or 80, Randall points out, "look young, act young, and in fact are young." They are penalized by the "stigma of unfitness" retirement too often carries. Wives and children, as well as the general public, he states, must be made to realize retirement at a set age "has nothing whatever to do with the physical fitness or mental alertness of the individual concerned. . . . It should never be thought of as a life sentence to inactivity."

The man who can find nothing to occupy his mind in later life "has probably not brought a new idea to his job in 20 years . . . his self-starter has obviously long since ceased to function . . . his friends tell him he should take up a hobby," a word which Randall considers "loathesome."

Instead, he urges the retired executive to "select the activity which excites him most," working either full or part-time as he pleases. Some men will earn more than they did in their regular jobs. For others, there is "the deep satisfaction of doing a job just because it needs to be done. At every level of society, the world cries out for men who will dedicate themselves to the public good. Our way of life is in peril." . . . *"How,"* asks the former steel executive, *"can a man who has reaped its benefits do better than to work for its preservation?"*

RELATED READING

Two books with many pointers on the new phases of daily living after retirement are *Some Observations on Executive Retirement* by Harold R. Hall and *Retirement: A New Outlook for the Individual* by Gifford R. Hart. Articles on retirement activities published in THE CONTROLLER have been made into a combined reprint. *(See ad on page 104.)*

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Remedial Proposals on Depreciation Rules

On October 24, 1960, James K. Polk, partner in Whitman, Ransom & Coulson, New York, addressed the 29th Annual International Conference of Controllers Institute of America on the subject of Depreciation. The following points constituted the gist of Mr. Polk's speech before that audience:

IT CAN be confidently predicted that the depreciation allowance is going to be changed, liberalized, and revised to properly equate true costs and receipts. The new depreciation provisions will seek to do away with the present maze of administrative hurdles, blocks, and restrictions. These tax law changes are the next order of business in Congress.

There have been many studies of the principal categories of remedial proposals. It is clear that there is no single solution to the exclusion of all others. The Congress may well adopt a combination of medicines rather than a single-ingredient remedy.

PRICE LEVEL CHANGES

The first proposal is for a basis price level adjustment and it is inherently simple. This recommendation proposes that the cost (or basis) by vintages be restated to present values by application of a Treasury-prescribed index reflecting price level changes to vintage cost (or basis); that prior depreciation allowances (however computed) be deducted therefrom, and that the balance be spread over the remaining lives under whatever system the taxpayer consistently adopts. The amount allocable to the current year would be that year's depreciation allowance.

THE CANADIAN SYSTEM

The second general proposal is patterned after the Canadian system. It contemplates grouping all depreciable property into relatively few brackets. Each bracket would be assigned minimum and maximum lives which would be shorter than the present bulletin of lives. Property in a bracket could be depreciated over any span within the minimum and maximum assigned to the bracket in which the asset falls. Such a system eliminates the administrative horrors of life estimates. From all that can be learned, it has worked out well in Canada.

WRITE-OFF PERIODS

A third proposal is the adoption of statutorily designated short-term write-off periods. If the write-off periods are short enough, the economic aims are achieved, and, of course, with fixed periods the administrative problems inherent in life estimate methods are obviated. Thus two objectives of depreciation revisions are attained. This approach is really an extension of the familiar five-year accelerated amortization techniques which were successfully used in World Wars I and II and in the Korean action.

LARGER ALLOWANCE

A fourth method might be to provide a significant initial allowance deduction. As it now stands, section 179 is a classic example of "too little and too late." If the principle is sound and small business is aided to a small extent by the initial allowance provision, it would seem that both a small business and a bigger business will be aided all the more by a larger allowance.

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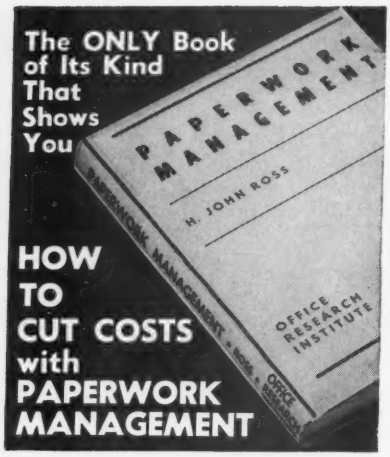
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Research Has Many Faces

Higher education for future business leaders is not the only work of college professors these days. Business problems increasingly invade the campus to be solved by substantial grants of money from associations seeking to clarify patterns for groups of companies while government gives to and receives advice and money from Foundations and universities. Four recent examples are found in these announcements:

The Maritime Administration states that four universities have been engaged to find ways of making better merchant ships. A grant of $50,000 will be given this year to each of these institutions: University of California, for study on ship structure; University of Michigan, propulsion; Massachusetts Institute of Technology, sea-going qualities; and Stevens Institute of Technology, control and maneuverability.

The aim is to improve the merchant marine's earning power by finding ways to design more efficient and more competitive ships. Vice-Adm. Ralph E. Wilson, Maritime Administrator, said this could curb rises in the cost of merchant marine subsidy programs.

•

A second example entails seminars launched by PMI (Plywood Manufacturers' Institute) to the tune of $70,000 raised from producers in the industry. Key executives, representing 125 mills accounting for 80 per cent of the nation's softwood plywood production, were called together in Portland, Oregon, to consider and combat the industry's past failures in equating supply and demand for its products. This meeting resulted in the promotion of marketing workshops and seminars for smaller groups in five West Coast cities from Tacoma, Washington, south to San Francisco, California.

Under the heading of "Seven Pillars of Wisdom for an Orderly Marketing System for Douglas Fir Plywood," the seminars were taught by Dr. N. H. Engle, a University of Washington economics and marketing professor, with a broad experience of government work and private consulting. Assisting him were two professors from other colleges.

Subjects ranged through market statistics, advertising and promotion, production control, storage, selecting proper marketing channels, price policy and discount policy.

There is talk in the Pacific Northwest of making these seminars, started on a temporary basis, a permanent part of the plywood industry's marketing efforts. Other industries could take a leaf from this notebook with advantage.

•

On a different tack is the use of a $8 million research grant from the Ford Foundation to the Council of Library Resources, Washington, D. C. The Council will use part of the grant to study photographic and electronic techniques to cope with the deluge of publications resulting from accelerated research. The Council also will seek to develop improved methods of storing and retrieving information in large research libraries.

•

Over the border, research took a different twist. In Montreal three Canadian companies formed a company to undertake joint research. The multimillion-dollar project would encourage Canadian university students to remain in Canada instead of migrating to other countries where there were better career opportunities.

The three companies are Dominion Tar and Chemical Company, Ltd., St. Lawrence Corporation, Ltd., and Howard Smith Paper Mills, Ltd. The facilities will be completed in 1962 but the companies did not reveal where the laboratory would be located.

Vending Machine Firms Survey New Horizons

No doubt we are getting ready for the robot men to shop in a robot manner! The present-day coin-fed machines are doing away with the clerk by being able to retail almost everything from ice cubes and hardware to race track bets and phonograph records. These versatile models from an industry, which was not too long ago limited pretty much to chewing gum, candy and cigarettes, are just an indication of how far the automatic vending trade (something to be reckoned with if one is planning market research) has come in even the last five years. Units can change currency as well as coins and can distinguish a good $5.00 bill from a

phony single, a feat some humans are not too proficient in on occasion! Lest one thinks this makes unemployment for clerks—it makes employment for those who have to fill the machines in the first place.

Lack of Data on Mergers

A study made by the National Industrial Conference Board found there was a notable lack of data on what mergers are taking place and how they affect the country. In fact, NICB said, figures are based on notices of mergers appearing in the standard financial sources and not on any official reporting program leading to a hazy picture of the current merger movement.

The Board also states that only two per cent of the mergers and acquisitions made among the nation's 300 largest manufacturers in 1958-59 had been challenged by the Federal Government as of March 1960. The Clayton Act enforcement has focused, not on the size of the companies involved, but on the market effects of the merger or acquisition. Backing this up, the study noted that of the 43 merger suits instituted against manufacturing companies between the end of 1950 and March 1960, more than one third concerned firms ranking below the 300 largest. The picture is much the same for distributors, it said.

Record Collection of State Taxes

Efforts by state lawmakers to meet rising obligations resulted in an extra $2 billion of tax revenue for the year 1960. Total collections increased in every state. The new all-time peak of more than $18 billion in total state tax collections amounted to an average per capita state tax burden of $101.72 for every man, woman and child in the nation.

According to Commerce Clearing House in its State Tax Review, the major categories from which income was derived were:

State income taxes a 23 per cent increase to a record $3.4 billion;
Sales tax collections soared 16 per cent to an all-time high of $4.3 billion;
Gasoline taxes were up 9 per cent to $3.3 billion.

These three accounted for 61 per cent of the total state tax take.

Tax legislation concentrated mostly on obtaining more revenue from existing taxes rather than enactment of new taxes. In some cases this was accomplished by reducing personal exemption thus creating an indirect tax increase. Some states picked up extra revenue by adopting for the first time methods successfully used in other states.

U. S. Tax Collection for 1960 Largest Total Ever Recorded

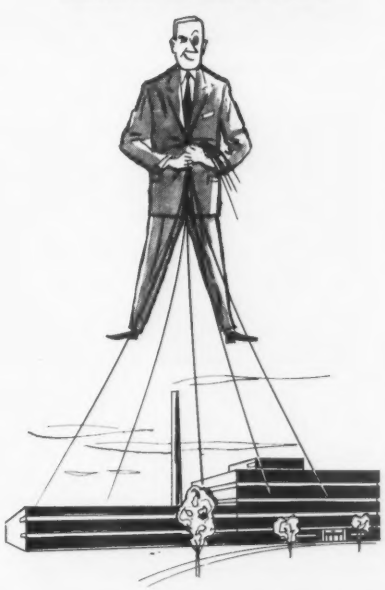
Federal tax collections reached more than $91 billion for the fiscal year ended June 30, 1960, the largest ever recorded, according to Commerce Clearing House, national reporting authority on tax and business law, in its annual Federal Tax Review. The huge total amounted to an unprecedented peacetime increase of $12 billion, exceeded in only two other years, 1944 and 1951, when tax boosts brought somewhat larger gains in collections. There were no income tax boosts in 1960.

The federal per capita tax burden rose to an average of $508.37, an increase of $57.80 per person during the year. The 1960 record tax collection more than doubled the tax take of ten years ago, and was nearly 17 times as great as the 1920 collection 40 years ago.

Funds Given by Industry to Independent Colleges on the Rise

Business and industry gave $9,679,556 last year to the Independent College Funds of America, Inc., against contributions totalling $8,804,446 in 1959. Since 1947, when the state association movement began in Indiana, a total of $50,298,277 has been contributed by business and industry.

How to EXPAND Clerical Controls Without EXPENDING for Extra Facilities



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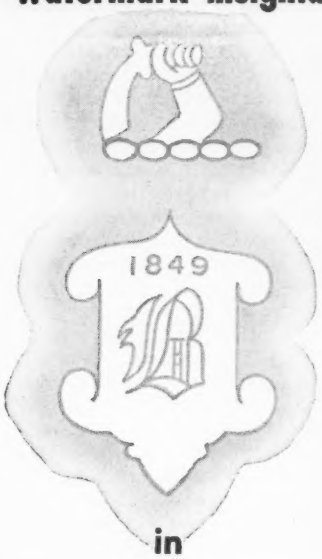

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Personal Notes

TOP MEN . . .

Louis R. Menagh, Jr. was elected president of the Prudential Insurance Company of America, Newark, N. J. He joined the company in 1914, was elected vice president and comptroller in 1947 and executive vice president in 1957. . . . **R. S. Moxley** recently became president of Vanette Hosiery Mills, Dallas, Texas. Mr. Moxley joined Vanette in 1960 as executive vice president. . . . **James W. Shields** is now president of his company, Judd & Detweiler, Inc., Washington, D. C. He joined the company in 1937 and rose from the ranks to the presidency. Mr. Shields is a past president of the District of Columbia Control of Controllers Institute. . . . **Harry F. Harrington** was elected chairman of the Boatmen's National Bank of St. Louis, Mo. He continues as president and chief executive officer.

MR. MENAGH

MR. SHIELDS

MR. ROWE

MR. DEMMERLY

MR. ERDMANN

MR. FREER

NEW CONNECTIONS . . .

Frank R. Demmerly has joined the Yale & Towne Manufacturing Company, New York, as corporate controller. . . . **William J. Edmonds** is now vice president and director of Chace Whiteside & Winslow, New York. . . . The appointment of **Henry C. Merriam** as comptroller of Peter Bent Brigham Hospital, Boston, Mass., was announced recently. . . . **Thomas J. Rowe** was recently named vice president and treasurer of Glen Alden Corp., New York.

ADDITIONAL DUTIES . . .

The election of **Charles A. Erdmann** as vice president and controller of Parke Davis & Company, Detroit, Mich., was announced recently. . . . **George M. Feiel** is now vice president and controller of Republic Steel Corporation, Cleveland, Ohio. . . . Public Service Electric & Gas Co., Newark, N. J., has elected **Frank Freer, Jr.** vice president and comptroller. . . . **R. W. Garbe** is now serving as comptroller and secretary of Hart Schaffner & Marx, Chicago, Ill.

Walter S. Holmes, Jr. is vice president and controller of CIT Financial Corp., New York. . . . **Sidney H. McManus** has assumed the responsibilities of vice president and comptroller of Sinclair Oil Corporation, New York. . . . The appoint-

(Continued on page 102)

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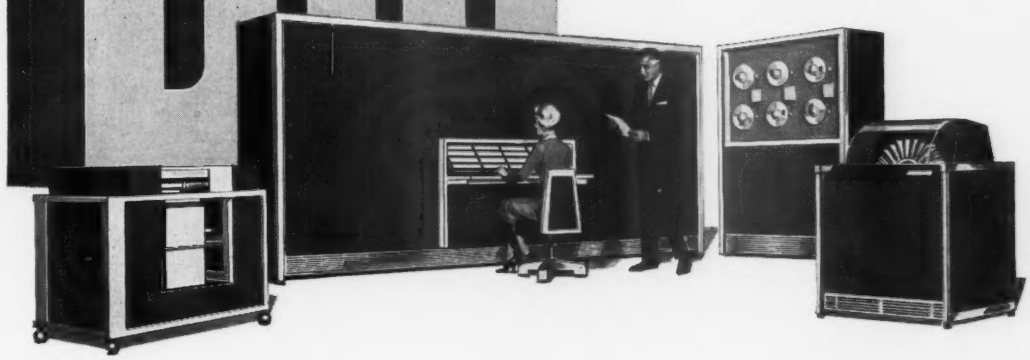

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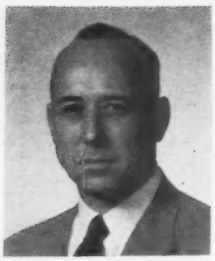
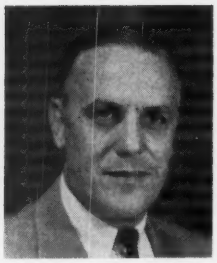


MR. PUGH

MR. INGRAM

MR. KELLEY



MR. CLARK

MR. HOUSTON

ment of **Andrew B. Pugh** as vice president and controller of Bankers Commercial Corporation, New York, was announced recently.

PROMOTIONS . . .

Stacy L. Angle recently became senior vice president of Minneapolis-Moline Company, Hopkins, Minn. . . . The appointment of **Frederick W. Bardusch** as vice president and loan review officer of the Chase Manhattan Bank, New York, occurred recently. . . . **Robert G. Brandely** was made vice president and controller of the East New York Savings Bank, Brooklyn, N. Y. . . . **A. A. Borg** was named vice president-finance of Walgreen Drug Stores, Chicago, Ill. . . . **Albert E. Carpenter** was elected vice president-finance of United Fruit Company, Boston, Mass.

Ben C. Carter was elected executive vice president-finance of Food Machinery & Chemical Corp., New York. . . . **James F. Flynn** has become special assistant to the chairman of Commercial Credit Company, Baltimore, Md. . . . **Willard Gorsuch** has been elected vice president of Dole Corporation, Honolulu, Hawaii, and will head the new Corporation Development Division of the company. . . . Raytheon Company, Waltham, Mass., has named **George Ingram, Jr.** its vice president-finance and chief financial officer.

E. W. Kelley has assumed the responsibility of general manager of the Birds Eye Division of General Foods Corporation, White Plains, N. Y. Mr. Kelley is a past president of the Kansas City Control of Controllers Institute. . . . Crompton & Knowles Corporation, Worcester, Mass., has appointed **William J. McLaughlin** comptroller. . . . **Frederick J. Otterbein** recently became vice president-financial administration, Birds Eye Division of General Foods Corporation, White Plains, N. Y. . . . **F. W. Peterson** is vice president and controller of South Brooklyn Savings Bank, Brooklyn, N. Y. . . . **J. S. Shaw, Jr.** recently became vice president-finance of the Southern Natural Gas Company, Birmingham, Ala.

George Griswold was elected vice president-finance of the South American Steamship Co., New York. . . . **John B. Tuthill** recently became vice president-finance of Collins Radio Co., Cedar Rapids, Iowa. . . . **John M. Wolf** is now treasurer of Bell Intercontinental Corporation, South Bend, Ind.

COMPANY CHANGES . . .

Logan Monroe has become administrative vice president of Eaton Manufacturing Company, Cleveland, Ohio. **Hugh McKibbin** succeeds him as controller. . . . **Edward W. Clark** was elected vice president of DeLaval Steam Turbine Company, Trenton, N. J., to head a new Administrative Services Division. **B. O. Houston** succeeds him as controller. . . . Ford Motor Company, Detroit, Mich., recently announced the following corporate changes: **Arjay R. Miller** becomes vice president-finance; **Richard L. Johnson** becomes treasurer and **J. E. Lundy** vice president and controller.

EXTRACURRICULAR ACTIVITIES . . .

In addition to his duties as certified public accountant, **George L. Sheppard** is a member of the faculty of the Arizona State University, Phoenix, Ariz. . . . **Robert D. Twohig,** vice president and treasurer of Skinner Precision Industries, Inc., New Britain, Conn., will be co-chairman of the 1961 fund campaign of the New Britain Heart Association.

SPEAKERS . . .

Among the speakers at the American Management Association's seminar on Data Processing, held January 23-27 at the Hotel Astor, New York, was **James P. Moore, Jr.,** vice president and controller, Mutual Benefit Life Insurance Co., Newark, N. J. . . . **Robert W. Holmes,** group controller of Raytheon Company, Waltham, Mass., was a guest speaker at the Harvard Business School recently.

MR. McLAUGHLIN

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Cost-Cutting Programs Spread in Industry

As PROFITS SAG, the formal cost-cutting program is mushrooming. Most companies are gunning for significant, long-term results—but they are moving cautiously, wary of "dramatic" savings that would injure future growth.

PRESIDENTS' PANEL OPINIONS

These are among the key findings that emerge from a *Dun's Review* and *Modern Industry* survey of top management opinion. The January 1961 issue of the Dun & Bradstreet business magazine reports a poll of its Presidents' Panel, composed of almost 200 corporate leaders, indicates two thirds of the Panel companies have already launched, or are planning to launch, formal cost-cutting programs.

As quoted in "Top Management Faces the Cost Challenge," Panel members scornfully reject some traditional cost-cutting techniques as short-sighted. In the absence of genuine disaster, 88 per cent of the presidents surveyed reject general salary cuts, and 66 per cent turn thumbs down on wholesale staff reductions. Both techniques, they believe, can do permanent harm to the company.

COST-CUTTING TARGETS

Production is the bulgiest spot in the corporate silhouette, say 39 per cent of the Panel, with the sales department, administration and staff activities, advertising, and research cited as runners-up. Some companies, however, refuse to name their favorite cost-cutting targets, agreeing with a New York manufacturer that "the fat must be rendered from each and every department or division."

Expense accounts, a target in every cost-cutting campaign, are being scrutinized anew. A large number of companies demand their people fly coach, rather than first class, when traveling on company business. Most examine expense statements meticulously (partly because of tighter requirements by the Internal Revenue Service). And many corporations are cutting back on company representation at out-of-state workshops, lectures, seminars, conventions, and association meetings.

Presidents emphatically reject some cost-cutting measures. Management development programs are virtually immune to cost cuts in about 40 per cent of Panel companies. Cuts in advertising and research and development are widely cited as "penny-wise, pound-foolish" economies. In advocating a go-slow approach, one president refers to such activities as "the earnings of the future."

The top executives on the Panel, who head manufacturing companies with an average of 10,000 employes each, emphasize the principles that should guide formal cost-cutting projects:

Long-range view: "It is imperative to keep in mind," advises President Henry C. Estabrook of Sealright-Oswego Falls Corp., Fulton, N. Y., "what the long-range effect of cost-cutting (over a five-year period, for instance) will be on a company. The tendency is to think of the immediate situation with not enough thought of the future."

Management leadership: President J. A. Keller of Mergenthaler Linotype Company, Brooklyn, N. Y., says, "Top management must lead and make personal sacrifices to establish tone. Follow-up and continuing attention to results are mandatory."

Communications: A continuing communications effort, directed at employes, is advocated by most chief executives. Notes William S. Lowe, president of A. P. Fire Brick Company, Mexico, Mo.: "Cutting back tests management's ability to maintain high morale under adverse conditions. We must develop the attitude that this is an opportunity."

Continuing control and review: A lasting program, rather than periodic cost-cutting drives, is urged by President Frank Armour, Jr., of H. J. Heinz Company, Pittsburgh, Pa. He maintains: "Costs should be continuously approached with severity. There is no in-between action in a vigorous business that is planning for the future."

SUCCESSFUL TECHNIQUES

Successful cost-cutting techniques, listed by a number of companies, vary widely. Some measures favored by Panel companies include: Reduction of inventories, introduction of automation, establishment of labor incentives, abandonment of unprofitable product lines, and cuts in executive pay.

Impressive savings are reported by a number of companies which began their programs in early 1960. Some examples of Panel comments:

"10 per cent shift in general administrative expense"

"Annual savings will total about $15 million"

"Break-even points have been lowered by 23 per cent"

Despite the success of cost-reduction efforts, almost 90 per cent of the Panelists agree with the president of a Pennsylvania company who observes: "The incentives for careful policing begin to erode when the pinch eases. Cost-cutting programs must be closely policed to be effective." Most Panel members agree emphatically that continuing control and review is the most rational way to hold costs in line.

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Change in Average Investor Forces Companies To Step Up Communications Job

THE SPREAD OF stock ownership to individuals in all walks of life is increasing industry's stockholder relations job. Since 1952, according to Hugh L. Rusch, vice president, Opinion Research Corporation, the number of share owners has grown from 6.5 million to nearly 11 million.

"The people who comprise this stockholder audience," Mr. Rusch told the New York City Control of Controllers Institute of America at a recent meeting, "have undergone considerable change. We usually think of them as bankers, executives, proprietors and professional people who have accumulated a lot of wealth. Actually, 60 per cent of them are clerks, farmers, manual workers and housewives. Furthermore, the average investor holds shares in 11 companies, which intensifies the competition for his attention.

"Our surveys of share owners show that 74 per cent of them have invested for the long pull," the speaker added, "which is also a factor in the growth of investor relations budgets. In our latest study, 50 per cent of the financial officers interviewed said they expect to spend more for this work. Broader stock ownership has brought their companies certain advantages. It represents a wider source of new equity capital, and every stockholder is viewed as a potential customer. The change means greater support for the business system and more company supporters in event of a public fight."

The annual report is regarded as the primary source of information by 60 per cent of the stockholders, Mr. Rusch explained. "As a result," he said, "today's advanced report undertakes a far bigger task than the mere statistical record of the past. It builds a strong image of the company's individual character. It invites patronage for products. It supplies insight on problems and solutions, and it projects the long view, as against the short run.

"While the trend has been toward simplicity, the use of pictures, charts and color in annual reports has increased tremendously. In 1943, only 33 per cent of annual reports used pictures or drawings, but in the last few years this has been stepped up to 84 per cent. In 1941, only 11 per cent used one-page fact summaries, but now they appear in 80 per cent of all reports. Almost all reports now use comparative figures. In spite of these improvements, 52 per cent of stockholders in a survey covering thousands of investors and hundreds of annual reports said the reports are dull, while only 43 per cent regarded them as interesting. This is a challenge to management's journalistic ingenuity and imagination.

"Perhaps unfortunately the stockholder has leaned in the direction of looking upon the corporation as a sort of Santa Claus. He seems to expect all sorts of nice things in addition to dividends, including free samples and invitations to meetings where free lunches are served. Being human, he pays attention to the corporation that gives him the most attention."

Services Gaining Over Goods

The Federal Reserve Bank of Chicago has confirmed what many observers of the economic scene had long suspected: consumer spending for services rose faster in the last ten years than spending for goods. The share of consumer expenditures going for services has increased from 33 to 39 per cent since 1949.

The bank defines "services" as a broad category including such items as rent, electrical bills, legal advice and funerals. The growing spending for services is said to reflect a continuous rise in the nation's standard of living.

In its latest monthly report on business conditions, the Chicago bank also noted that the cost of services had gone up faster than that for goods—34 per cent and 22 per cent, respectively.

As for present business conditions, the report said that probably the most significant development of the third quarter was a drop in consumer buying as compared with income. Personal income rose 1 per cent in the period, while retail sales fell 3 per cent. Savings also increased as the rate of new installment debt slowed.

CHANGING YOUR ADDRESS?

Notice of change of address for THE CONTROLLER should be received in the editorial offices of THE CONTROLLER, Two Park Avenue, New York 16, N. Y., before the first of the month to affect the following month's issue. For instance, if you desire the address changed for your April issue, we should be notified of your new address before March 1. *Be sure to include your postal zone as well as your old and new address.*